

# THE CITY OF NEW YORK OFFICE OF THE COMPTROLLER 1 CENTRE STREET NEW YORK, N.Y. 10007-2341

Scott M. Stringer

# NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM

### **COMMON INVESTMENT MEETING**

### **REPORTING & INITIATIVES**

**DECEMBER 15, 2016** 

LOCATION:

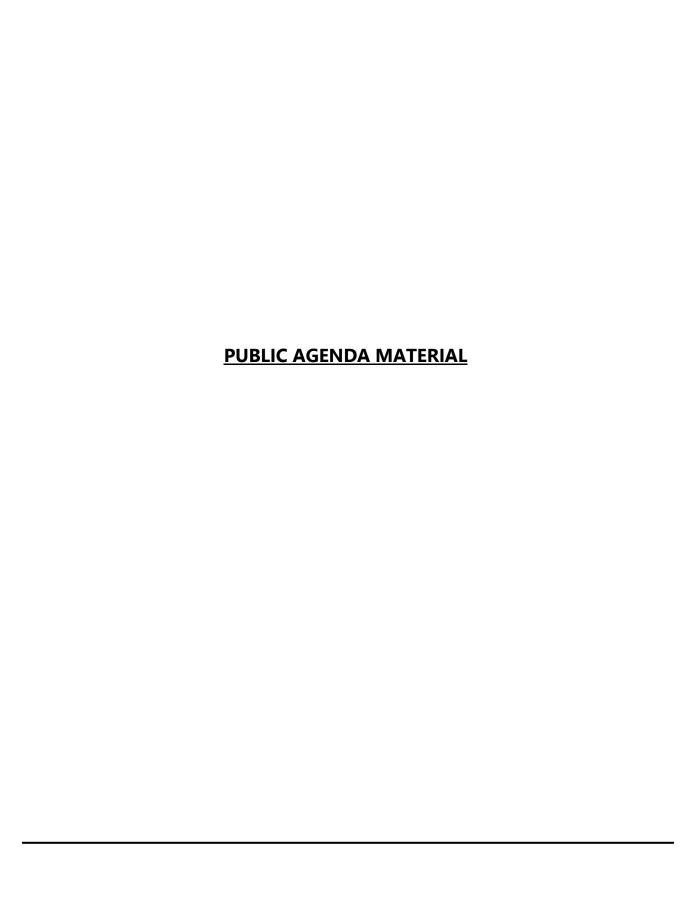
Office of the New York City Comptroller 1 Centre Street, 10<sup>th</sup> Floor - Northside New York, NY 10007

# NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM COMMON INVESTMENT MEETING – REPORTING & INITIATIVES DECEMBER 15, 2016 PUBLIC AGENDA MATERIAL

l.	Performance Reporting:	<u>Page</u>
	Total Fund Performance Overview - Public	_
	(Material to be sent under separate cover)	
	• ETI Quarterly Report a/o September 30, 2016	5
	Private Equity Quarterly Report a/o June 30, 2016	12
	• Real Assets Quarterly Report a/o June 30, 2016	50

#### **APPENDICES**:

•	Basket Clause	78	
•	• Liquidity Analysis	80	ĺ



<b>Total Fund Performance Ove</b>	rview –	Public
-----------------------------------	---------	--------

(Material to be sent under separate cover)



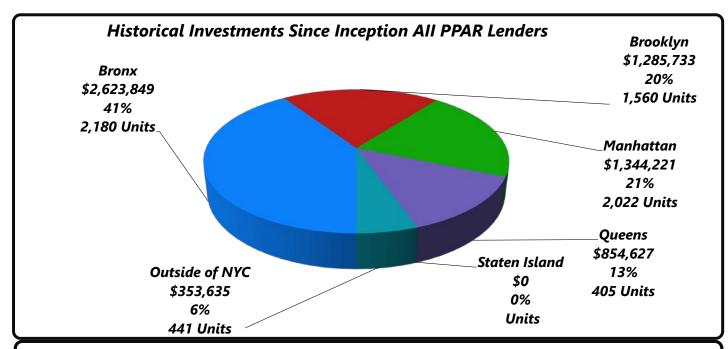
#### **Public/Private Apartment Rehabilitation Program (PPAR)**

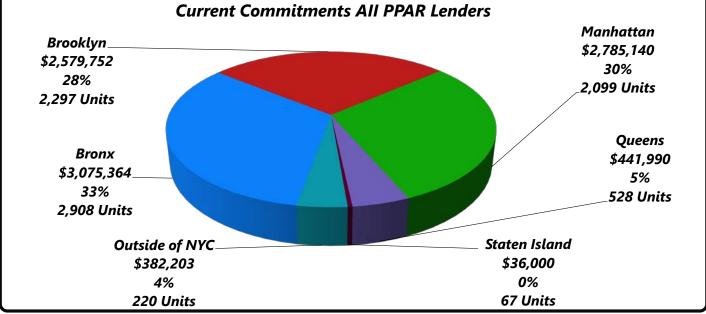
Lenders*	BOA		CCD		CFSB	CPC		<u>JPM</u>		<u>LIIF</u>		NCBCI	П	NHS	WF		LISC		BE	
Contractual Commitment	\$4.00 MN	1	\$4.00 MN	1	\$1.00 MM	\$4.00 MI	M	\$5.00 MM		\$4.00 MM	1	\$1.00 MM		\$1.00 MM	\$2.00 MN	1	\$1.00 MM		\$1.00 MM	1
Current Market Value	\$1.48 MM	1	\$1.34 MN	1	\$0.15 MM	\$0.93 MI	M	\$2.05 MM		\$1.08 MM	1	\$0.12 MM		\$0.00 MM	\$0.00 MN	1	\$0.00 MM		\$0.00 MM	Л
	<u>Dollars</u>	<b>Units</b>	<u>Dollars</u>	Units	Dollars Units	<u>Dollars</u>	Units	<u>Dollars</u> U	Units	<u>Dollars</u>	Units	Dollars Uni	its	Dollars Units	<u>Dollars</u>	Units	Dollars U	nits	<u>Dollars</u>	Units
Commitments Q3 2016																				
(included in total)																				
Bronx	\$0	0	\$0	0	\$0 (	\$0	0	\$0	0	\$0	0	\$0	0	\$0 0	\$80,000	90	\$0	0	\$0	0
Brooklyn	0	0	0	0	0 (	0	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0
Manhattan	0	0	0	0	0 (	0	0	0	0	0	0	0	0	0 0	0	0	0	0	211,105	83
Queens	0	0	0	0	0 (	0	0	219,300	68	0	0	0	0	0 0	0	0	0	0	0	0
Staten Island	0	0	0	0	0 (	0	0	. 0	0	0	0	0	0	0 0	0	0	0	0	0	0
Outside of NYC	0	0	0	0	0 (	0	0	0	0	0	0	0	0	0 0	0	0	0	o	0	0
Total	\$0	0	\$0	0	\$0 (	\$0	0	\$219,300	68	\$0	0	\$0	0	\$0 0	\$80,000	90	\$0	0	\$211,105	83
Delivered Q3 2016																				
(included in total)																				
Bronx	\$0	0	\$0	0	\$0 (	\$0	0	\$209,997	72	\$26,950	20	\$0	0	\$0 0	\$0	0	\$0	0	\$0	0
Brooklyn	0	0	0	0	0 (	0	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0
Manhattan	0	0	0	0	0 (	0	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0
Queens	0	0	0	0	0 (	0	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0
Staten Island	0	0	0	0	0 (	0	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0
Outside of NYC	0	0	0	0	0 (	0	0	197,700	56	0	0	0	0	0 0	0	0	0	o	0	0
		-	_	-				,								_				_
Total	\$0	0	\$0	0	\$0 (	\$0	0	\$407,697	128	\$26,950	20	\$0	0	\$0 0	\$0	0	\$0	0	\$0	0
Total Commitments																				
Bronx	\$0	0	\$813,878	350	\$0 (	\$317,788	1,324	\$1,493,600 1	1,035	\$257,675	61	\$0	0	\$0 0	\$80,000	90	\$112,423	48	\$0	0
Brooklyn	469,141	346	576,812	161	0 (	258,749	897	111,720	127	697,398	251	0	0	0 0	0	0	247,215	156	218,717	359
Manhattan	336,000	100	0	0	0 (	349,036	1,134	288,513	214	919,066	275	0	0	0 0	482,642	203	198,779	90	211,105	83
Queens	90,000	54	0	0	0 (	132,690	406	219,300	68	0	0	0	0	0 0	0	0	0	0	0	0
Staten Island	0	0	0	0	0 (	0	0	0	0	0	0	0	0	0 0	36,000	67	0	0	0	0
Outside of NYC	89,250	39	210,800	41	0 (	48,650	74	33,503	66	0	0	0	0	0 0	0	0	0	0	0	0
	•		-																	
Total	\$984,391	539	\$1,601,489	552	\$0 (	\$1,106,913	3,835	\$2,146,636 1	1,510	\$1,874,139	587	\$0	0	\$0 0	\$598,642	360	\$558,417	294	\$429,822	442
Historical Investments																				
Bronx	\$262,500	60	\$558,980	452	\$0 (	\$143,238	715	\$1,406,847	836	\$252,283	117	\$0	0	\$0 0	\$0	0	\$0	0	\$0	0
Brooklyn	278,535	54	315,116	252	0 (	321,639	919	175,578	90	194,865	245	0	0	0 0	0	0	0	0	0	0
Manhattan	0	0	236,908	283	161,181 197	208,684	1,023	38,520	119	595,611	277	103,318 1	23	0 0	0	0	0	0	0	0
Queens	752,952	239	40,000	54	0 (	7,675	16	54,000	96	0	0	0	0	0 0	0	0	0	0	0	0
Staten Island	. 0	0	0	0	0 (	0	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0
Outside of NYC	0	0	0	0	0 (	155,935	385	197,700	56	0	0	0	0	0 0	0	0	0	0	0	0
Total	\$1,293,987	353	\$1,151,004	1,041	\$161,181 197	\$837,171	3,058	\$1,872,645 1	1,197	\$1,042,760	639	\$103,318 1	23	\$0 0	\$0	0	\$0	0	\$0	0
*Lenders :	Bank of		Citibank Comn	nunity	Carver Federal	The Commu	ınity	JP Morgan	1	Low Income	е	NCB Capital Impa	ct	Neighborhood	Wells Farg	0	Local Initiative	es	Bellwethe	er

America Development Savings Bank Preservation Corp Chase Investment Fund Housing Service Support Corp Enterprise

**Public/Private Apartment Rehabilitation Program (PPAR)** 

Lenders*	All Lender T		
Contractual Commitment	\$28.00 M		
Current Market Value	\$7.14 MM		
	<u>Dollars</u>	<u>Units</u>	
Commitments Q3 2016			
(included in total)			
Bronx	\$80,000	90	
Brooklyn	0	0	
Manhattan	211,105	83	
Queens	219,300	68	
Staten Island	0	0	
Outside of NYC	0	0	
Total	\$510,405	241	
Delivered Q3 2016			
(included in total)			
Bronx	\$236,947	92	
Brooklyn	0	0	
Manhattan	0	0	
Queens	0	0	
Staten Island	0	0	
Outside of NYC	197,700	56	
Total	\$434,647	148	
Total Commitments			
Bronx	\$3,075,364	2,908	
Brooklyn	2,579,752	2,297	
Manhattan	2,785,140	2,099	
Queens	441,990	528	
Staten Island	36,000	67	
Outside of NYC	382,203	220	
	•		
Total	\$9,300,449	8,119	
Historical Investments			
Bronx	\$2,623,849	2.180	
Brooklyn	1,285,733		
Manhattan	1,344,221		
Queens	854.627		
Staten Island	054,027	-03	
Outside of NYC	353.635	•	
outside of file	333,033	771	
Total	\$6,462,065	6,608	
5.53	, -,, 500	,,	





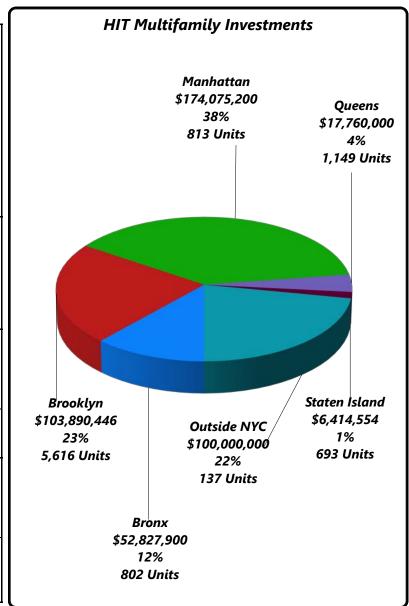
The City of New York - Office of the Comptroller

Collateral Benefits as of 9/30/2016

AFL-CIO Housing Investment Trust (HIT)
Market Value \$16.1 million\*

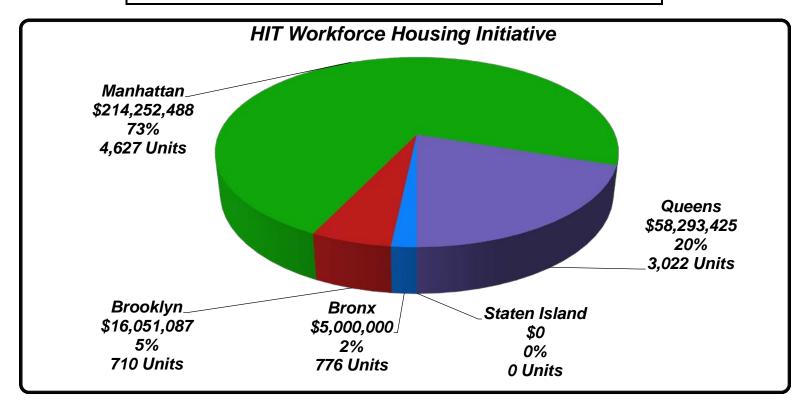
NYC Community Investment Initiative (NYCCII)

NYCCII Phase II 2006-2013				
Multifamily Investments Detail				
		Investments		Housing Unit
Borough	Q3 Investments	Since Inception	Q3 Housing Units	Since Inceptio
Bronx	\$0	\$52,827,900	0	80
Brooklyn	0	103,890,446	0	5,61
Manhattan	0	174,075,200	0	81
Queens	0	17,760,000	0	1,14
Staten Island	0	6,414,554	0	69
Outside NYC	0	100,000,000	0	13
Total	\$0	\$454,968,100	0	9,21
Grand Total NYCCII Phase II		\$454,968,100		9,21
NYCCII Phase I 2002-2005				
	<u>Dollars</u>	<u>Units</u>	Member Loans	Total All NYC PF
Multifamily Investments	\$249,123,500	12,024	n/a	n/
HIT Home Investments	348,300,563	n/a	131	44
Total NYCCII Phase I	\$597,424,063	12,024	131	44
NYCCII Phases I & II				
	<u>Dollars</u>	<u>Units</u>	Member Loans	Total All NYC PF
Multifamily Investments	\$704,091,600	21,234	n/a	n/
HIT Home Investments	2,899,899,500	n/a	131	44
Grand Total NYCCII Phases I & II	\$3,603,991,100	21,234	131	44

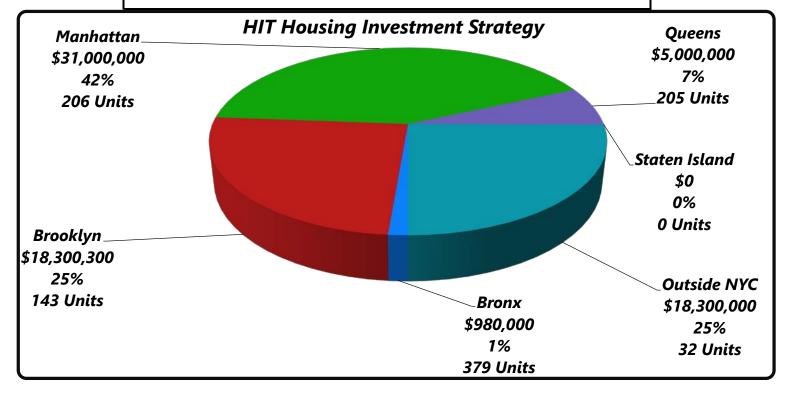


<sup>\*</sup>Interest is reinvested

<b>AFL-CIO Housin</b>	g Investment Trust (HI	T)							
NYC Workforce Housing Initiative									
Investments From 2009 Through Q3 2016									
Workforce Inves	Workforce Investments Detail								
		Investments		Housing Units					
<u>Borough</u>	<b>Q3 Investments</b>	<b>Since Inception</b>	<b>Q3 Housing Units</b>	Since Inception					
Bronx	\$0	\$5,000,000	0	776					
Brooklyn	0	16,051,087	0	710					
Manhattan	0	214,252,488	0	4,627					
Queens	0	58,293,425	0	3,022					
Staten Island	0	0	0	0					
Total	\$0	\$293,597,000	0	9,135					

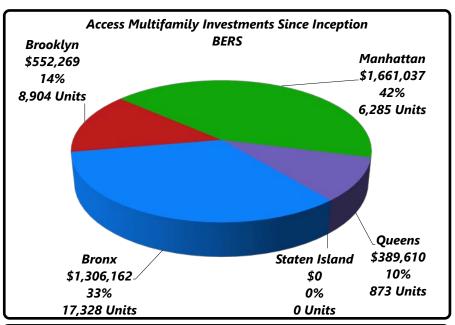


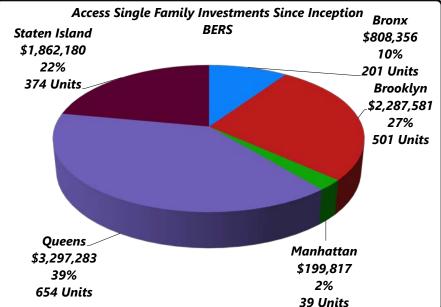
AFL-CIO Housing Investment Trust (HIT)								
HIT Housing Investment Strategy								
Investments From Q4 2015 Through Q3 2016								
Housing Investm	ent Strategy Detail							
		<u>Investments</u>		Housing Units				
<u>Borough</u>	<b>Q3 Investments</b>	Since Inception	<b>Q3 Housing Units</b>	Since Inception				
Bronx	\$0	\$980,000	0	379				
Brooklyn	18,300,300	18,300,300	143	143				
Manhattan	31,000,000	31,000,000	206	206				
Queens	0	5,000,000	0	205				
Staten Island	0	0	0	0				
Outside NYC	0	18,300,000	0	32				
Total	\$49,300,300	\$73,580,300	349	965				



ACCESS CAPITAL STRATEGIES (Since Inception 2/1/07)

\$7.20 million Allocated (2.34% of total a	account)			
Market Value \$5.98 million				
Multifamily Investments Detail	\$ Inve	ested <sup>1</sup>	<u>Uni</u>	ts <sup>2</sup>
<del></del>	Q3	Total	Q3	Total
Bronx	\$0	\$1,306,162	0	17,328
Brooklyn	0	552,269	0	8,904
Manhattan	0	1,661,037	0	6,285
Queens	0	389,610	0	873
Staten Island	0	0	0	0
Total BERS Multifamily Investments	\$0	\$3,909,078	0	33,390
Multifamily Total All Systems	\$0	\$167,054,619	0	33,390
Single Family Investments Detail	\$ Inv	ested	Uni	its
Single running investments betain	Q3	<u>Total</u>	Q3	<u>Total</u>
Bronx	\$5,546	\$808,356	1	201
Brooklyn	0	2,287,581	0	501
Manhattan	0	199,817	0	39
Queens	0	3,297,283	0	654
Staten Island	18,509	1,862,180	3	374
Total BERS Single Family Investments	\$24,055	\$8,455,218	4	1,769
Single Family Total All Systems	\$1,028,000	\$361,334,111	4	1,769
Other Investments Detail	\$ Inv	ested	Loa	ns
	Q3	<u>Total</u>	Q3	<u>Total</u>
Bronx	<u> </u>	\$15,795		
Brooklyn	0	126,135	0	8
Manhattan	0	56,930	0	5
Queens	0	12,716	0	3
Staten Island	0	0	0	0
Total BERS Other Investments	\$0	\$211,577	0	17
Other Investments Total All Systems	\$0	\$9,041,740	0	17
Grand Total BERS	\$24,055	\$12,575,873		
Grand Total All Systems	\$1,028,000	\$537,430,470		



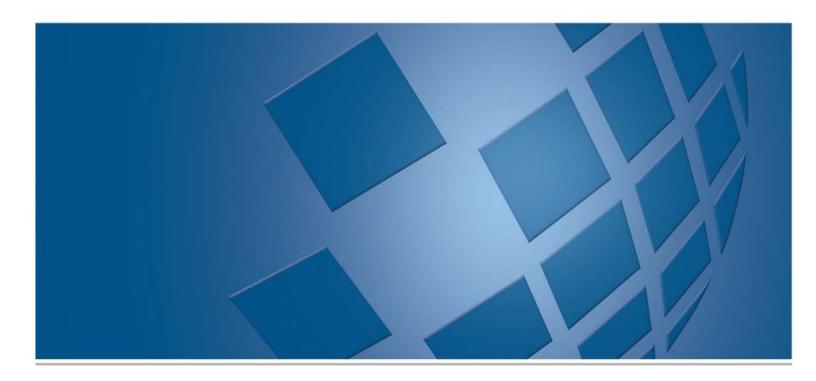


<sup>&</sup>lt;sup>1</sup> Certain bond investment amounts are allocated pro rata across boroughs based upon unit count.

<sup>&</sup>lt;sup>2</sup> If not indicated otherwise, superintendent units are allocated based on building size.







#### Content

Section 1 – Market Update

Section 2 – Portfolio Update

Section 3 – Portfolio Assessment

Section 4 – Funds-of-Funds Review

Appendix A – Glossary of Terms

Appendix B – Disclosure Statements

Second Quarter 2016 Report



# Section 1:

Market Update

Second Quarter 2016 Report

# The Private Equity Market

#### Introduction<sup>1</sup>

On June 23, 2016, the referendum was held in which the people of the UK voted to leave the EU. announcement surprised the world and led to a mixed reaction across global markets during the second quarter of 2016.

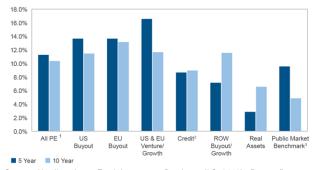
The U.S. public markets ended the quarter on another high note, as the S&P 500 rose 2.5%. The index experienced some volatility toward the end of the quarter, but the gain earned earlier in the quarter nevertheless held up. majority of the increase occurred in May when an upgrade was made to U.S. GDP growth predictions; however, the expectation that the Fed could raise interest rates contracted this growth in June.

Despite the news of Brexit, UK equities rose during the quarter as the FTSE All-Share increased 4.7%. anticipation of the benefits from a weakened currency, the UK equity market was able to recover from post-Brexit losses. Sectors such as oil and gas, basic materials, healthcare and consumer goods all experienced strong quarter ends as the sterling weakened. Conversely, the rest of the Eurozone saw their equities decline as the MSCI EMU index ended the second guarter down 2.2%. The index declined in June after the Brexit announcement.

The Japanese equity market declined 7.4% during the second quarter due to the UK's announcement as investors focused on the impact of short-term currency appreciation. Similar to Europe, the rest of the Asian markets ended the second quarter slightly more positive.

#### Private Equity Performance

Chart 1: Time Weighted Returns: Private Equity vs. MSCI World



Source: Hamilton Lane Fund Investment Database (2Q 2016). Return figures are geometric averages of time-weighted returns in local currency. Returns longer than one year are annualized. The All PE sample includes all funds classified as buyout, growth equity, venture capital, distressed debt,

Private equity returns have continued to outperform the MSCI World Index as noted in Chart 1. Looking at the 10-year time period, all private equity strategies outperformed global public markets, as measured by the MSCI World index, by an average of 5.9%. European buyout was the top performing strategy over this time period producing, a 12.8% return. Over the 5-year period, credit, rest-of-world buyout and real assets underperformed the MSCI World Index. Venture/Growth was the top performer over this time period, posting a 17.9% return, while all private equity, U.S. buyout and European buyout each outperformed the index.

Compared to domestic equities and high-yield bonds over a 10-year period, private equity has outperformed on a total return basis, producing a 9.8% return compared to 6.9% and 6.6% respectively. Private equity looks even more appealing when assessing the risk/return profile as the asset class' Sharpe ratio is 0.47, compared to 0.23 for domestic equities and 0.31 for high-yield bonds.2

Chart 2: Private Equity IRR Quartiles by Vintage Year



Source: Hamilton Lane Fund Investment Database (2Q 2016) MSCI World, net reinvested dividends. Benchmark calculated as PME (Public Market Equivalent) using All Private Equity pooled cashflows.

Top-quartile funds have outperformed the MSCI World Index in every vintage year from 1991 to 2013, while median-guartile funds have also outperformed the index in every year with the exception of 1999 and 2000. Chart 2 highlights the importance of manager selection as top-quartile managers outperform public benchmarks year after year. The chart also highlights how uncommon negative returns can be while investing in private equity, as bottom-quartile managers generated negative performance in only five out of the last 23 vintage years, including 2013, which is still working through the Jcurve.



mezzanine, infrastructure, co-investment, real estate, secondaries or special situation strategies contained within the Hamilton Lane Fund Investment Database as of the date of this chart. The All PE sample's performance is calculated on a pooled basis where larger funds have a greater impact than smaller funds. Performance of the funds included in this sample takes into account the effect of fees charged by the fund's GP, but not by Hamilton Lane.

Includes Mezzanine and Distressed Debt Strategies

MSCI World, local currency, with reinvested dividends net of tax
 MSCI World, local currency, with reinvested dividends net of tax

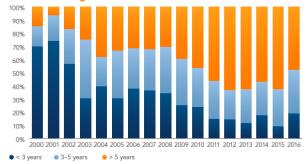
Schroders Market Review 2Q16

Indices used: Hamilton Lane All Private Equity with volatility de-smoothed; Russell 3000 Index; MSCI World ex US Index; MSCI Emerging Markets Index; Barclays Aggregate Bond Index; Credit Suisse High Yield Index; HFRI Composite Index; FTSE/NAREIT Equity REIT Index; S&P Global Infrastructure Index.

#### Second Quarter 2016 Report

#### Increase in Exit Activity

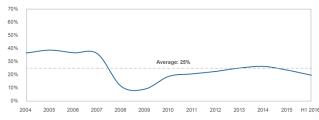
**Chart 3: Holding Period of Exited Deals** 



Source: Hamilton Lane Fund Investment Database (August 2016)

The amount of private equity-backed exits increased 18% quarter-over-quarter to 434. These exits were valued at \$90 billion, representing a 33% increase quarter-over-quarter. Beginning in 2009, holding periods for underlying companies began to trend upward. In 2015, more than 60% of companies were held longer than 5 years. Year-to-date 2016 has seen a slight decrease, as just under 50% of the exited companies have been held for longer than 5 years. Consequently, the amount of companies exited in less than 3 years, increased to 20%.

Chart 4: Industry Level All PE<sup>1</sup> Distribution Pace



Source: Hamilton Lane Fund Investment Database (2Q 2016). Cashflows through 6/30/2016.

<sup>†</sup>The All PE sample includes all funds classified as buyout, growth equity, venture capital, distressed debt, mezzanine, infrastructure, co-investment, real estate, secondaries or special situation strategies contained within the Hamilton Lane Fund Investment Database as of the date of this chart. The All PE sample's performance is calculated on a pooled basis where larger funds have a greater impact than smaller funds. Performance of the funds included in this sample takes into account the effect of fees charged by the fund's GP, but not by Hamilton Lane.

The decrease in exit activity over the past year, is reflected in the industry-level distribution pace, which was 19.8% of net asset value (NAV). This is below the 10-year average and a continuation from 2015, when the pace fell below the average for the first time since 2012. However, 2Q16 distributions totaled \$117.0 billion, a 167% increase in total value from 1Q16.

Chart 5: Private Equity Industry Level Cash Flows (USD in Billions) 1



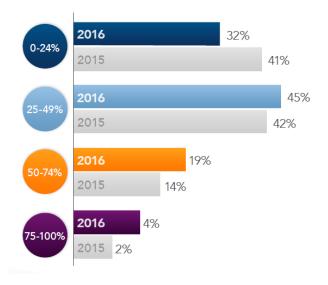
Source: Hamilton Lane Fund Investment Database (2Q 2016). 
<sup>1</sup>Cashflows through 6/30/2016.

#### Investor Appetite

Investor appetite for the asset class has remained strong as evidenced by increasing allocations and record levels of fundraising. Preqin conducted a survey, that revealed 56% of investors intend to increase their allocations to private equity in the longer term, and only 7% plan to decrease their allocations.<sup>3</sup>

Co-investments have been an area of growing interest as investors increase allocation to private equity. Hamilton Lane conducted a survey of general partners ("GPs") which revealed that more limited partners ("LPs") are pursuing co-investment opportunities as seen in the chart below. 2015 produced high levels of co-investment interest from LPs, which represents an increase year-over-year.

Chart 6: Percentage of LPs asking to see co-investment opportunities



Source: Hamilton Lane Market Overview 2016 GP Survey



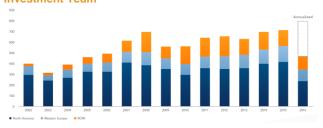
<sup>&</sup>lt;sup>3</sup> Prequin Investor Outlook: Alternative Assets H2 2016

#### Second Quarter 2016 Report

#### **Private Equity Fundraising**

Hamilton Lane saw a 30% increase in Private Placement Memorandums ("PPMs") received during the first quarter, and second quarter volume stayed on the same pace. 2016 is on track to be a record year for PPMs received due to fund managers offering more investments across more geographies and increased specialization of strategy choices. While the increase in the number of funds provides more choices to the Limited Partners, it also increases the complexity of fund selection.

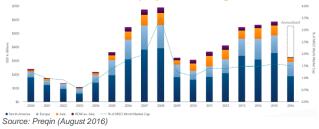
Chart 7: PPMs Received by Hamilton Lane Fund Investment Team



Source: Hamilton Lane Diligence (August 2016)

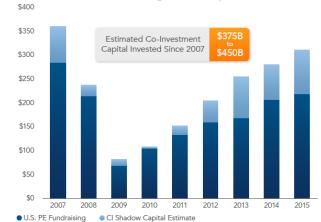
Fund raising through the second quarter of 2016 is above the long-term average of \$387.0 billion per year, yet the levels have been flat in relation to the percentage of the MSCI World Market Cap since 2013. In the second quarter, 180 funds closed on an aggregate amount of \$101.0 billion. Buyout funds raised an aggregate amount of \$56.1 billion, which was more than all other strategies combined. Venture capital was the strategy with the most funds to close with 89 funds closing in the second quarter.

**Chart 8: Global Private Equity Fundraising** 



After a slowdown in private equity fundraising, the second quarter saw amounts of capital raised return to average levels. While "traditional" fundraising may seem to have hit a plateau, layering in shadow fundraising from co-investments shows that fundraising levels are trending back to highs seen in 2007. Private equity returns continue to outperform the public market benchmarks over the long term period (Chart 2). Investor net cash flows increased significantly in the investor's favor quarter-over-quarter (Chart 5) adding to the appeal of the private equity market.

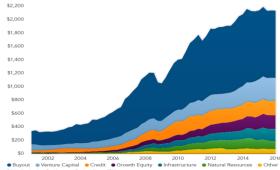
#### Chart 9: U.S. PE Fundraising and CI Capital



Source: Hamilton Lane Estimates, Pitchbook (June 2016)

#### **Capital Overhang**

#### **Chart 10: Private Equity Dry Powder**



Source: Hamilton Lane Fund Investment Database (May 2016). Real Assets includes Infrastructure and Natural Resources. Excludes real estate, secondary, and funds-of-funds strategies.

The total amount of dry powder has not shifted significantly quarter-over-quarter and represents a decline from 2015. However, the unfunded age is trending above the average of 2.1 years. Buyout and venture capital remained unchanged, while the average age of credit increased to nearly 4 years.

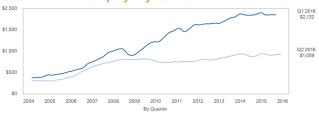
Industry-level dry powder decreased 6% in 1Q 2016 to \$929.5 billion. All strategies experienced a reduction in dry powder, with the exception of EU buyout, which added \$4.9 billion during the quarter. Real assets led the decline, eliminating \$11.9 billion. Chart 10 shows that dry powder has sustained 2008 levels over the past seven years, a result of expansion into strategies such as credit, real assets and emerging markets. Due to high purchase prices, General Partners have been disciplined in deployment of capital which in turn has caused the age of capital overhang to reach record highs.

<sup>&</sup>lt;sup>4</sup> 2Q16 Preqin Quarterly Update



#### Second Quarter 2016 Report

**Chart 11: Private Equity Dry Powder** 

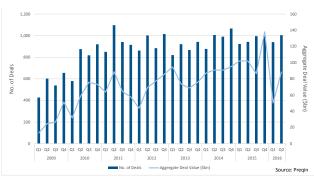


Source: Hamilton Lane Fund Investment Database (2Q 2016).

#### Deal Activity

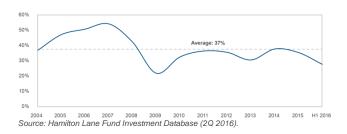
After a decline in global buyout deals through 1Q16, Q2 saw a small bounce back of 7% with 1,004 deals closing. The more significant rebound was in the aggregate deal value increasing to \$88.5 billion from \$50.1 billion. This represents a 76% increase from 1Q16, which accounted for the lowest aggregate deal value since 1Q12. Europe and North America accounted for the majority, increasing 99% and 83% in deal value, respectively.

Chart 12: Quarterly Number and Aggregate Value of Private Equity-Backed Buyout Deals Globally



Source: Preqin Q2 Quarterly Private Equity Update

#### **Chart 13: Industry Level All PE Contribution Pace**

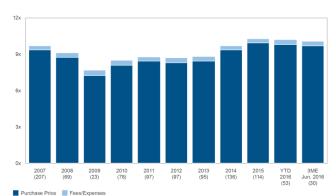


Although deal activity has increased from the previous quarter, the contribution pace at the industry level declined. Contributions relative to unfunded commitments are at 27.7%, which is well below the average of 37%.

#### **Deal Pricing**

Purchase prices in North America have seen a slight decline to 8.7x after spiking to 9.4x in 2015, while pricing in Western Europe reached a 16-year high of 11.5x. Prices in North America are seeing their first significant drop since 2009.

#### **Chart 14: LBO Purchase Price Multiples**

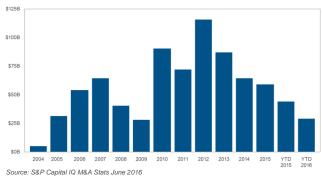


Source: S&P Capital IQ M&A Stats June 2016

#### **Debt Markets**

2Q16 U.S. sponsored high-yield bonds increased quarter-over-quarter, but are still down over the long-term. High-yield bonds volume increased in the first five months of the year; however this trend halted in June with the announcement of Brexit. <sup>6</sup>

Chart 15: Volume of Sponsored High-Yield Bond Issuances





<sup>5</sup> The Q2 2016 Preqin Quarterly Update

<sup>&</sup>lt;sup>6</sup> KKR Credit June Market in Review

Second Quarter 2016 Report

# Spotlight: Debt/Credit

#### Introduction

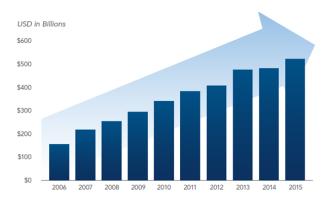
Institutional Investors have become increasingly interested in private debt in recent years. The private debt market has experienced consistent growth as there are more opportunities within the strategy, returns have been attractive, and the amount of capital raised continues to rise.

#### **Fundraising and Performance**

The private debt market has seen consistent growth over the last ten years as seen in Chart 1, as the total assets under management has grown from \$150 billion to just over \$500 billion. The largest strategies include distressed debt (38%), mezzanine debt (25%), and direct lending (22%).

Credit investing offers investors J-curve mitigation, as seen in Chart 2. Data shows the credit strategy generates a positive median IRR after four quarters, which is much shorter when compared to some of the larger strategies such as corporate finance/buyout, which takes nine quarters, and venture capital, which takes 12 quarters. When compared to co-investment, venture, real estate and buyout, credit investing assumes the lowest level of risk, while still managing to achieve attractive positive returns.

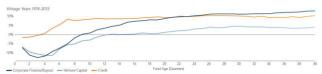
**Chart 1: Private Debt AUM** 



Source: Preqin Private Debt Online (December 2015)

The amount of negative-yielding debt globally has grown significantly since 2014. As seen in chart 3, negative-yielding debt has grown from less than 1 trillion to over \$10 trillion. Large bond markets such as Switzerland, Japan, and Germany have had the interest rates on their outstanding debt turn negative. The current yield for municipal bonds is 1.6% which is equal to the minimum yield over the last 20 years. Bond yield in all sectors and regions (high-yield, U.S. corporate, 30Y Mortgage, 10Y treasury, and emerging markets) continue to remain low, as they are all close to the minimum. High-yield bonds are currently the highest at 7.3%<sup>7</sup>

Chart 2: Median IRR J-Curves by Strategy

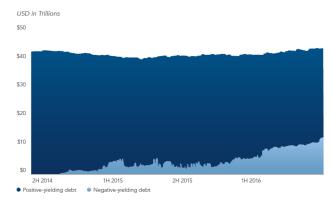


Source: Hamilton Lane Fund Investment Database (June 2016)

Currently, private debt represents a small percentage of investor portfolios and is dwarfed by investment in public fixed income. The average percentage of assets under management allocated to public fixed income is 26%, while the highest allocation to private debt is just above 10% by family offices.<sup>8</sup>

To achieve target returns, investors need to increasingly turn towards equity and alternatives. To earn a 7.5% return in 1995, investors could allocate 100% of their capital towards bonds. In 2005, the amount allocated towards bonds decreased to 52% as investors needed to diversify their portfolios to achieve outperformance and the amount of allocation towards private equity increased to 4%. Today, the allocation necessary to gain 7.5% towards bonds is 12%, while allocation towards private equity has increased to 12%.

**Chart 3: Growth of Negative-Yielding Debt Globally** 



Source: The Wall Street Journal / Bank of America Merrill Lynch (July 2016)

<sup>&</sup>lt;sup>8</sup> Pregin Investor Interviews, Pensions & Investments (December 2015)





<sup>&</sup>lt;sup>7</sup> Barclays U.S. High Yield Index, Barclays U.S. Coporate Aggregate Index, Federal Reserve 30Y Mortgage rate, US 10Y Treasury, Barclays Emerging Market Agg. (July 2016)

#### Second Quarter 2016 Report

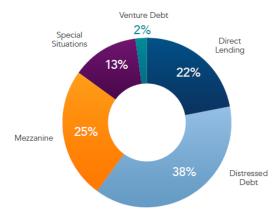
Chart 4: Credit (Distressed and Mezzanine Debt) IRR Quartiles

		IRR Quartile	es .
Vintage	Top Q IRR	Median IRR	Bottom Q IRR
1982 - 1985	13.4%	10.8%	8.7%
1986 - 1987	11.0%	6.1%	1.6%
1988	14.1%	12.8%	10.6%
1989 - 1990	23.4%	14.3%	11.9%
1992 - 1993	15.8%	14.1%	11.5%
1994 - 1996	7.9%	5.6%	3.5%
1997	13.0%	8.4%	5.3%
1998	11.1%	8.2%	5.9%
1999	12.0%	10.8%	8.0%
2000	10.9%	10.4%	8.4%
2001	22.6%	14.7%	8.7%
2002	34.6%	22.6%	12.6%
2003	25.8%	16.7%	8.1%
2004	9.8%	8.4%	0.9%
2005	8.8%	7.2%	4.5%
2006	8.3%	7.4%	1.5%
2007	9.0%	7.0%	4.0%
2008	13.5%	10.6%	6.7%
2009	14.1%	9.4%	7.1%
2010	12.8%	9.9%	7.7%
2011	10.3%	8.9%	5.3%
2012	14.5%	9.2%	2.3%
2013	9.1%	3.7%	-2.8%
2014	9.2%	3.1%	-4.4%
2015	6.5%	1.0%	-4.2%
Total	12.8%	8.4%	3.8%

Source: Hamilton Lane Fund Investment Database (June 2016)

Credit has produced positive median IRRs from vintage years 1982 through 2015 with an overall median IRR of 8.4%. 2002 was the apex at 22.6% and 2015 represents the trough at 1.0% however; these funds are early in their life cycle and still working through the J-curve. <sup>10</sup>

**Chart 5: Private Debt Strategy Mix** 



Source: Preqin Private Debt Online (December 2015)

Historically, private debt investing had been mainly comprised of mezzanine and distressed debt strategies. Now, direct lending almost makes up nearly one quarter of private debt investing. The departure of banks from lending activity due to

increased regulatory requirements has allowed alternative firms to provide the direct lending. LP interest in their debt allocations and diversifying their private equity portfolio has also helped fuel this growth.

#### **Outlook**

Fifteen years ago, allocations to private equity, were at the level of today's allocations to private debt. <sup>11</sup> Private debt allocations have continued to grow as the total capital under management has grown three-fold over the last nine years. As investors continue to see positive returns coupled with a lower risk profile, it becomes more likely they will continue to allocate capital towards private debt.



<sup>&</sup>lt;sup>10</sup> Hamilton Lane Fund Investment Database (2Q 2016)

<sup>&</sup>lt;sup>11</sup> Prequin Investor Interviews, Pensions & Investments (December 2015)

Second Quarter 2016 Report



# Section 2:

Portfolio Update

#### Second Quarter 2016 Report

#### **Portfolio Snapshot**

Hamilton Lane was engaged by the NYC Board of Education Retirement System ("BERS") in November 2012 to provide alternative investment fund administration services in accordance with the investment objectives of the BERS Private Equity portfolio (the "Portfolio"). This report represents the review by Hamilton Lane of the BERS's Portfolio and is based on information made available to Hamilton Lane by the general partners sponsoring each of the partnership investments in the Portfolio as of June 30, 2016, with highlights through September 30, 2016.

**Private Equity Allocation:** BERS has a target allocation of 6.0% to Private Equity. As of June 30, 2016, Private Equity constituted 5.1% of BERS total plan. (Plan value is \$4.495 billion as of June 30, 2016)

**Performance:** As of June 30, 2016, the Portfolio consists of 41 active partnerships from 29 underlying fund managers. The Portfolio has generated a since inception internal rate of return ("IRR") of 10.03% and a total value multiple of 1.36x.

Portfolio Summary						
\$ in millions	3/31/2016	6/30/2016	Change			
Active Partnerships	36	41	5			
Active GP Relationships	26	29	3			
Capital Committed <sup>(1)(2)</sup>	\$474.1	\$528.0	\$53.9			
Unfunded Commitment	\$234.0	\$281.7	\$47.7			
Capital Contributed	\$244.7	\$255.4	\$10.7			
Capital Distributed	\$109.5	\$119.5	\$10.0			
Market Value	\$222.1	\$229.1	\$7.0			
Total Value Multiple	1.36x	1.36x	-			
Since Inception IRR	9.96%	10.03%	7 bps			
Avg. Age of Active Commitments	3.7 years	3.8 years	0.1 years			

<sup>(1)</sup> The "change" in capital committed from the prior quarter reflects currency adjustments from existing foreign denominated funds and an additional commitment made during the quarter.

**Portfolio Exposures:** The Corporate Finance/Buyout strategy represents 53% of the Portfolio's total exposure, Secondary represents 13%, Growth Equity represents 12%, Special Situations/Turnaround represents 8%, Venture Capital accounts for 7%, Co-Investment represents 6%, and Other represents 1%. Strategic exposure takes into account the strategies for each of the underlying partnerships in the funds-of-funds within the BERS Portfolio.

<sup>(2)</sup> Includes only committed capital in the 2012 and 2015 Emerging Manager Programs

#### **Portfolio Overview**

#### Commitments

The table below highlights the fund that has closed during the second quarter 2016.

YTD Commitments - 2016					
Closing Date	Partnership	Investment Strategy	Commitment (\$ in Millions)		
1/15/2016	Stellex Capital Partners, L.P.	Special Situations/Turnaround	\$4.0		
4/25/2016	Green Equity Investors VII, L.P.	Corporate Finance/Buyout - Large	\$10.0		
5/26/2016	Vista Equity Partners Fund VI, L.P.	Corporate Finance/Buyout - Mega	\$16.0		
5/27/2016	Apax IX USD, L.P.	Corporate Finance/Buyout - Mega	\$13.0		
6/30/2016	BC European Capital X, L.P.	Corporate Finance/Buyout - Large	€10.0/\$11.1		
6/30/2016	BC European Capital X Metro Co-Investment L.P.	Co/Direct Investment	€4.0/\$4.4		
Total			\$58.5		

The Portfolio closed on six new investment, totaling \$58.5 million, which are detailed below:

**Stellex Capital Partners, L.P. (\$4.0 million)** the fund, the first commitment of the Emerging Manager 2015 Program, will target middle-market distressed and special situation opportunities primarily within the United States but may also opportunistically invest in Europe. The fund will seek control through equity buyouts or debt restructuring.

**Green Equity Investors VII, L.P. (\$10.0 million)** the fund will seek to invest in market-leading companies with attractive growth prospects across a broad range of industries within the U.S., with a preference for companies primarily in the following sectors: retail/consumer, healthcare/wellness, business/consumer services, and distribution.

**Vista Equity Partners Fund VI, L.P. (\$16.0 million)** the fund targets upper middle-market enterprise software companies in a relatively fragmented and expanding market. The fund seeks control positions in investments and intends to contribute significant value-add capabilities through board representation and the involvement.

Apax IX USD, L.P. (\$13.0 million) the fund will invest in buyouts in large cap companies mainly in Europe and North America. The fund targets four core sectors: consumer, healthcare, services, and technology and telecommunications. The fund seeks to invest in majority positions in order to gain control and drive value post-investment.

BC European Capital X, L.P. (€10.0/\$11.1 million) the fund will invest primarily in control buyouts of upper midand large-sized companies, focusing mainly in Europe, with select investments in the North America.

BC European Capital X Metro Co-Invest L.P. (€4.0/\$4.4 million) the fund is co-investment vehicle related to the BC European Capital X, L.P. commitment.

#### Second Quarter 2016 Report

#### **Subsequent Closings**

Subsequent to the quarter end September 30, 2016, the portfolio closed one additional commitment totaling \$3.5 million.

Subsequent Closings				
Partnership	Investment Strategy	Commitment (\$ in Millions)	Closing Date	
FTV V, L.P.	Growth Equity	\$3.5	9/15/2016	
		\$3.5		

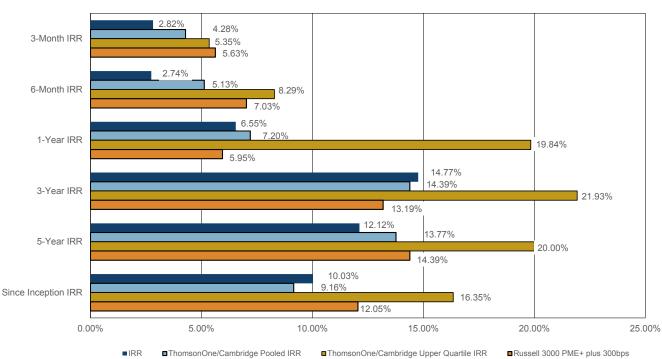
**FTV V, L.P. (\$3.5 million)** the fund, an Emerging Manager 2015 Program commitment, will target enterprise technology & services, financial services, and payments & transaction processing sectors primarily in the United States. Investments to established, high-growth companies in the lower middle market will range between \$20 million and \$80 million.

#### Second Quarter 2016 Report

#### **Portfolio Performance Summary**

The chart below is a graphical depiction of the IRR performance of the Portfolio with respect to 3-Month, 6-Month, 1-Year, 3-Year, 5-Year, and Since Inception time periods. The Portfolio is benchmarked against the ThomsonOne/Cambridge Pooled IRR, and ThomsonOne/Cambridge Upper Quartile IRR, as well as the Russell 3000 Total Return Public Market Equivalent ("PME+") plus 300 bps.





Note: Private Equity benchmark is provided by ThomsonOne/Cambridge and reflects U.S. Buyout Funds Pooled IRR and Upper Quartile IRR as of June 30, 2016, for funds with vintage years 2005, 2006, 2009, 2012, 2013, 2014, 2015 and 2016. PME+ is the Russell 3000 Total Return Index and incorporates the PME+ methodology. This calculation includes a 3.0% premium.

- As private equity is a long term asset class, the most significant time horizon is the since inception time period. Performance on a since inception basis for the second quarter of 2016 increased 7 basis points from the prior quarter, with the Portfolio generating an IRR of 10.03%.
  - Relative to benchmarks, the since inception IRR is outperforming the ThomsonOne/Cambridge Pooled IRR by 87 basis points, but is underperforming the ThomsonOne/Cambridge Upper Quartile IRR by 632 basis points and the Russell 3000 PME+ plus 300 basis points premium by 202 basis points.
- Performance on a one-year basis for the second quarter 2016 decreased 37 basis points from the prior quarter, with the Portfolio generating an IRR of 6.55%.
  - Relative to the benchmarks, the one-year IRR is outperforming the Russell 3000 PME+ plus 300 bps by 60 basis points, while underperforming the ThomsonOne/Cambridge Pooled IRR by 65 basis points and the ThomsonOne/Cambridge Upper Quartile IRR by 1,329 basis points.

#### **Vintage Year Performance**

The table below details IRR performance of the Portfolio with respect to Vintage Year. The Portfolio is benchmarked against the ThomsonOne/Cambridge Median Quartile IRR, the ThomsonOne/Cambridge Upper Quartile IRR, and the Russell 3000 Public Market Equivalent ("PME+").

Performance by Vintage Year <sup>(1)</sup>							
Vintage Year		Capital Committed	IRR	ThomsonOne/ Cambridge Median Quartile IRR <sup>(2)</sup>	ThomsonOne/ Cambridge Upper Quartile IRR <sup>(2)</sup>	PME Benchmark <sup>(3)</sup>	PME Spread <sup>(4)</sup>
2005	\$	57,000,000	8.79%	8.11%	13.57%	8.18%	0.61%
2006		44,000,000	8.51%	8.83%	14.76%	10.40%	(1.89%)
2009		45,000,000	15.53%	19.20%	27.26%	11.97%	3.56%
2012		40,000,000	19.88%	14.17%	22.95%	10.08%	9.80%
2013		85,698,210	7.97%	9.54%	17.89%	5.73%	2.24%
2014		97,450,000	10.11%	6.45%	14.02%	4.26%	5.85%
2015		90,285,564	N/M	N/M	N/M	N/M	N/M
2016		68,516,764	N/M	N/M	N/M	N/M	N/M

<sup>(1)</sup> For details regarding Paid-In Capital, Distributions and Market Value by Vintage Year please see Section 3 of the report, Portfolio Assessment.

- Vintage year 2012 has generated the highest since inception IRR for the Portfolio at 19.88% and is outperforming the ThomsonOne/Cambridge Median Quartile IRR by 571 basis points and the Russell 3000 PME+ by 980 basis points, but is underperforming the ThomsonOne/Cambridge Upper Quartile IRR by 307 basis points.
  - The top performing partnership in the vintage year 2012 is Platinum Equity Capital Partners III, L.P., a Special Situations/Turnaround partnership, which has generated a since inception IRR of 46.59%.

<sup>(2)</sup> ThomsonOne/Cambridge Benchmark - U.S. Buyouts as of 6/30/2016.

<sup>(3)</sup> PME is the Russell 3000 Total Return Index and incorporates the PME+ methodology.

<sup>(4)</sup> PME Spread is the percentage difference between the IRR and PME Benchmark for each respective partnership.

#### **Quarterly Value Analysis**

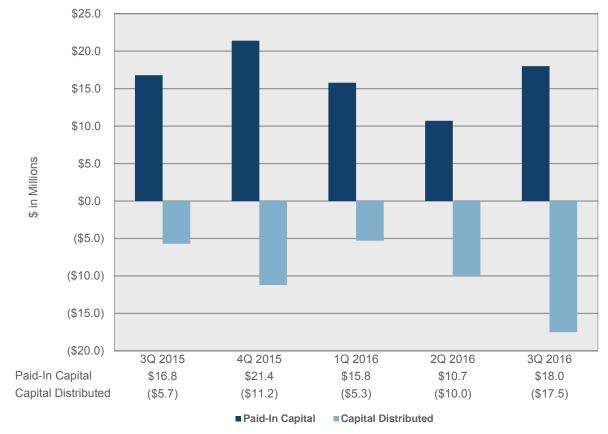
The table below details quarterly performance of the Portfolio for the year ending June 30, 2016.

Portfolio Summary					
		Quarter Ending			
\$ in millions	9/30/2015	12/31/2015	3/31/2016	6/30/2016	6/30/2016
Beginning Market Value	\$183.2	\$195.5	\$211.8	\$222.1	\$183.2
Paid-in Capital	16.8	21.4	15.8	10.7	64.7
Distributions	(5.7)	(11.2)	(5.3)	(10.0)	(32.2)
Net Value Change	1.2	6.1	(0.2)	6.3	13.4
Ending Market Value	\$195.5	\$211.8	\$222.1	\$229.1	\$229.1
Unfunded Commitments	\$218.8	\$244.0	\$234.0	\$281.7	\$281.7
Total Exposure	\$414.3	\$455.8	\$456.1	\$510.8	\$510.8
Point to Point IRR	0.63%	3.06%	(0.11%)	2.82%	6.55%
Since Inception IRR	10.34%	10.44%	9.96%	10.03%	10.03%

- Over the past twelve months, the Portfolio has experienced a total of \$13.4 million in net value appreciation.
  - During the past four quarters, the Portfolio has consistently been cash flow negative, deploying more capital than was returned via realizations. Contributions of \$64.7 million outpaced distributions of \$32.2 million during the twelve months ending June 30, 2016.
- Market value and unfunded commitments have increased over the past twelve months due to recent
  capital commitments. Total exposure, the sum of market value and unfunded commitments provide a
  snapshot of the PE Portfolio's capital at work, has increased 23% during the year.

#### **Cash Flow Drivers**

The chart below highlights the cash flows of the Portfolio over the past five quarters ended September 30, 2016.



- Contribution activity in the second quarter decreased 32.0% while distributions increased 89.8% from the prior quarter, respectively. Cash activity was negative during the quarter as contributions of \$10.7 million outpaced distributions of \$10.0 million.
  - EQT VII, L.P. called the most capital during the second quarter of 2016, calling \$2.9 million for various investments, primarily for investment in Industrial and Financial Systems ("IFS").
    - Based in Sweden, IFS provides modularized and industry specific Enterprise Resource Planning software. IFS is publicly traded under ticker IFS on the OMX Stockholm exchange.
  - Vista Equity Partners Fund V, L.P., distributed the most capital during the quarter, returning \$4.3
    million in proceeds to the portfolio from the sale of Transfirst Holdings Corp. Upon full release of
    escrow, the investment will have generated a 113% gross IRR and 2.9x cost.
    - Transfirst Holdings, headquartered in Hauppauge, New York, is a provider of secure transaction processing services and payment enabling technologies.
- During the third quarter cash activity increased from the prior quarter by 67.4% for contributions and 75.2% for distributions. Contributions continued to outpace distribution during the quarter, resulting in net contributions of \$0.5 million to the Portfolio.

#### Second Quarter 2016 Report

- Apollo Investment Fund VIII, L.P. called the most capital during the third quarter of 2016, calling \$2.7 million for multiple investments. The largest investment during the quarter was for an investment in Diamond Resorts for \$1.2 million.
  - Diamond Resorts, headquartered in Las Vegas, Nevada, operates three hospitality and vacation business segments including sale of vacation ownership interests, consumer financing related to vacation ownership purchases, and hospitality and management services to resorts. Apollo Investment Fund VIII, L.P. purchased publicly traded shares (NYSE: DRII) in September at \$30.25 per share, for a total investment of \$1.8 billion.
- The Portfolio received its largest distribution from Mesirow Financial Private Equity Partnership Fund III, L.P., which distributed \$4.8 million in proceeds from undisclosed investments. Through September 30, 2016, Mesirow Financial Private Equity Partnership Fund III, L.P. has realized a 1.19x DPI (Distributions to Paid-in).

#### Second Quarter 2016 Report

#### **Value Drivers**

The table below displays the Portfolio's top five performance drivers by net value change for the quarter ending June 30, 2016.

Top Five Performing Investments for the Quarter Ending June 30, 2016						
Investment Name	Vintage Year	Net Value Change (\$ Millions)	Point-to-Point IRR	Since Inception IRR		
Mesirow Financial Private Equity Partnership Fund V, L.P.	2009	\$1.7	4.34%	15.53%		
Carlyle Partners VI, L.P.	2013	1.3	13.43%	8.02%		
Platinum Equity Capital Partners III, L.P.	2012	0.7	8.08%	46.59%		
CVC Capital Partners VI, L.P.	2013	0.6	10.58%	(0.62%)		
Mesirow Financial Private Equity Partnership Fund IV, L.P.	2006	0.6	3.20%	9.98%		

- The above five partnerships generated an aggregated net value increase of \$4.9 million during the second quarter 2016.
  - Mesirow Financial Private Equity Partnership Fund V, L.P., a 2009 Fund-of-Funds partnership, generated a net value increase of \$1.7 million. Thoma Bravo Fund IX, L.P., an underlying fund, was the largest write-up during the quarter. Thoma Bravo Fund IX, L.P., a 2008 Buyout fund, primarily targets companies in the software and services sectors and invests primarily in the U.S.
  - Carlyle Partners VI, L.P., a 2013 Mega Buyout partnership, generated \$1.3 million in net value gain during the quarter. Portfolio companies Vogue International, Inc. ("Vogue") and Centennial Resource Development, LLC ("Centennial") received the largest mark-ups during the quarter, 68.3% and 63.5%, respectively. The Fund entered a sale agreement for Vogue subsequent to quarter end for \$1.5 billion, valued at a 3.56x gross MOIC and 80% gross IRR upon exit. Similarly, the Fund's investment in Centennial entered a sale agreement for a purchase price of \$1,575 million, valued at a 2.1x gross MOIC.
  - O Platinum Equity Capital Partners III, L.P., a 2012 Special Situations/Turnaround partnership, generated a net value increase of \$0.7 million. Sensis Pty Ltd., a print and digital directory company based in Australia, led net value increases along fund investments. The company was written up 64.8% during the quarter to reflect improved operating performance. As of June 30, 2016, the investment, which was held at 2.4x cost and 110.0% gross IRR in the prior quarter, is valued at 2.7x cost and 116.5% gross IRR.
  - CVC Capital Partners VI, L.P., a 2013 Mega Buyout partnership, generated \$0.6 million in net value gain during the quarter. Stage Entertainment experienced a 25.0% write up to market value during the quarter due to improved earnings. Based in the Netherlands, Stage produces musical shows in Europe. As of June 30, 2016, the investment, held at cost in the prior quarter, is valued at 1.3x cost and 34.6% gross IRR.
  - Mesirow Financial Private Equity Partners Fund IV, L.P., a 2006 Fund-of-Funds partnership, generated a net value increase of \$0.6 million during the quarter. On average, underlying fund investments were marked up 0.4% during the quarter. In addition, the partnership distributed \$0.9 million in proceeds from undisclosed investments.

#### Second Quarter 2016 Report

The table below shows the Portfolio's bottom five performance drivers by net value change for the quarter ending June 30, 2016.

Bottom Five Performing Investments for the Quarter Ending June 30, 2016					
Investment Name	Vintage Year	Net Value Change (\$ Millions)	Point-to-Point IRR	Since Inception IRR	
Vista Equity Partners Fund V, L.P.	2014	(\$0.4)	(1.90%)	8.60%	
Crestview Partners III, L.P.	2014	(0.3)	(9.31%)	(12.83%)	
EQT VII, L.P.	2015	(0.2)	(9.84%)	(28.27%)	
Warburg Pincus Private Equity XII, L.P.	2015	(0.1)	(10.75%)	(28.50%)	
Valor Equity Partners III, L.P.	2015	(0.0)	(0.83%)	12.27%	

- The partnerships listed above generated a net value loss of \$1.0 million during the second quarter 2016. The bottom drivers are comprised entirely of recent vintage year funds, which typically experience j-curve impacts at the onset of a fund's life.
- In aggregate, the above partnerships generated a point-to-point IRR of (3.50%) during the second quarter of 2016. Longer-term, these partnerships generated a since-inception IRR of 4.27% as of June 30, 2016.

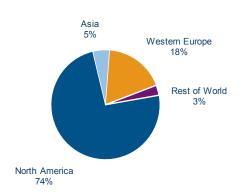
#### **Portfolio Exposures**

The pie chart below represents the strategic and geographic diversification of the Portfolio as of June 30, 2016. Strategy is measured by total exposure, which is the sum of the market value and the unfunded commitments, providing a snapshot of the Portfolio's future diversification. Strategic exposure takes into account the strategies for each underlying partnership in the funds-of-funds within the BERS Portfolio. Geography is measured by the Portfolio's exposed market value of the underlying portfolio holdings.



Underlying Investment Diversification by Geographic Location As of June 30, 2016





USD in Millions As of June 30, 2016

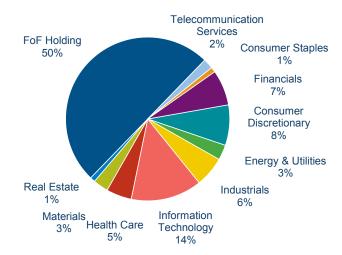
710 01 04110 00, 20 10		
	Sum of Current Exposed Market Value	% of Total
North America	\$182.5	74%
U.S. (non-NY State)	\$164.4	66%
U.S. (NY State)	\$18.1	7%
New York City	\$4.5	2%
Non-New York City	\$13.6	5%
Western Europe	\$45.5	18%
Asia	\$13.3	5%
Rest of World	\$7.1	3%
Total	\$248.4	100%

- The Portfolio is focused in the Corporate Finance/Buyout strategy, with 52% of the total exposure attributable to this strategy.
- With respect to geography, the Portfolio is concentrated in North America, with 74% of the Portfolio's underlying market value attributable to this region.
  - The remaining 26% of the Portfolio's exposure is diversified between Western Europe, Asia and 'Rest-of-World'.
  - Roughly 7% of the Portfolio's current exposed market value is based in New York, with 2% based in New York City companies and fund managers.

#### Second Quarter 2016 Report

The pie chart below represents the industry diversification of the Portfolio as of June 30, 2016. Industry diversification is measured by the Portfolio's exposed market value of the underlying portfolio companies and fund managers.

#### Underlying Investment Diversification by Industry As of June 30, 2016



 The Portfolio has a large exposure to the FoF Holding sector (50%), representing over half of the Portfolio's total exposure. Commitments made to the three Mesirow Fund-of-Funds accounted for 70% of exposure to Fund-of-Funds holdings.

#### Second Quarter 2016 Report

#### **Private Equity Company Exposure**

The table below identifies the top ten underlying holdings held by partnerships in the BERS Portfolio, as measured by exposed market value as of June 30, 2016. As noted in the second column, the values of underlying holdings held by several partnerships have been aggregated.

Top 10 Partnership Holdings by Exposed Market Value June 30, 2016					
Partnership Name	Partnership	Exposed Valuation (\$ in Millions)	% of Total Portfolio		
Solera Holdings Inc.	Vista Equity Partners Fund V, L.P.	3.9	1.6%		
TIBCO Software, Inc.	Vista Equity Partners Fund V, L.P.	3.5	1.4%		
Lightspeed Venture Partners IX	Mesirow Financial Private Equity Partnership Fund V, L.P.	3.3	1.3%		
WOW	Crestview Partners III, L.P. Crestview Partners III (Co-Investment B), L.P.	3.1	1.3%		
New Enterprise Associates 13, L.P.	Mesirow Financial Private Equity Partnership Fund IV, L.P. Mesirow Financial Private Equity Partnership Fund V, L.P.	2.9	1.2%		
Thoma Bravo Fund X, L.P.	Mesirow Financial Private Equity Partnership Fund IV, L.P. Mesirow Financial Private Equity Partnership Fund V, L.P.	2.8	1.1%		
TSG6 L.P.	Mesirow Financial Private Equity Partnership Fund IV, L.P. Mesirow Financial Private Equity Partnership Fund V, L.P.	2.7	1.1%		
Vicente Capital Partners Growth Equity Fund (fka KH Growth Equity Fund)	New York Fairview Private Equity Fund, L.P.	2.7	1.1%		
Sun Capital Partners V, L.P.	Mesirow Financial Private Equity Partnership Fund III, L.P. Mesirow Financial Private Equity Partnership Fund IV, L.P.	2.6	1.1%		
Kelso Investment Associates VIII, L.P.	Mesirow Financial Private Equity Partnership Fund III, L.P. Mesirow Financial Private Equity Partnership Fund IV, L.P. Mesirow Financial Private Equity Partnership Fund V, L.P. Lexington Capital Partners VIII, L.P.	2.5	1.0%		
Total		\$30.0	12.2%		

Note: Undisclosed fund investments are not included in this analysis.

- As of June 30, 2016, the top ten partnership holdings represent 12.2% of the total Portfolio's exposed market value, or \$30.0 million of exposed market value.
- Six of the ten top partnership holdings are held in multiple funds within the Portfolio.
- Solera Holdings, Inc., the Portfolio's largest exposure, a provider of risk & asset management software
  and data solutions to the automotive and insurance industries. Vista Equity Partners Fund V, L.P. made
  its initial investment in February 2016. The investment is held at cost as of June 30, 2016.

Second Quarter 2016 Report



# Section 3:

Portfolio Assessment

# NYC Board of Education Retirement System Private Equity Portfolio As of June 30, 2016 (in USD)

Vintage	Investment	First		Committed	Paid-In Capital	C	Distributed	ſ	Market Value	Multiple	IRR <sup>1</sup>	PME	PME Spread <sup>3</sup>
Year		Drawdown		Capital			Capital					Benchmark <sup>2</sup>	
	Nestments	7/20/2006	۲.	F7 000 000	¢	Ċ	CO 745 002	<u> </u>	20 607 662	1 (7)	0.700/	0 170/	0.639/
2005	Mesirow Financial Private Equity Partnership Fund III, L.P.	7/20/2006	\$	57,000,000	, ,	Ş	60,745,092	\$	29,607,662	1.67x	8.79%	8.17%	0.62%
2006	Mesirow Financial Private Equity Partnership Fund IV, L.P.	3/31/2008		25,000,000	21,717,233		15,628,759		18,405,577	1.57x	9.98%	11.69%	(1.71%)
2006	New York Fairview Private Equity Fund, L.P.	7/14/2006		19,000,000	17,320,307		14,239,216		9,637,001	1.38x	6.77%	8.89%	(2.12%)
2009	Mesirow Financial Private Equity Partnership Fund V, L.P.	3/7/2011		45,000,000	31,514,326		9,008,886		40,213,888	1.56x	15.53%	12.12%	3.41%
2012	Platinum Equity Capital Partners III, L.P.	1/14/2013		15,000,000	10,079,481		6,474,549		9,531,607	1.59x	46.59%	11.74%	34.85%
2012	Warburg Pincus Private Equity XI, L.P.	7/17/2012		25,000,000	21,952,230		2,796,133		24,844,754	1.26x	12.47%	9.95%	2.52%
2013	Apollo Investment Fund VIII, L.P.	12/11/2013		20,000,000	8,644,467		177,895		9,232,497	1.09x	9.17%	4.51%	4.66%
2013	Carlyle Partners VI, L.P.	7/3/2013		20,000,000	10,135,538		371,801		10,966,914	1.12x	8.02%	5.80%	2.22%
2013	Carlyle Partners VI, L.P Side Car	9/23/2014		2,200,000	1,193,499		-		1,113,732	0.93x	N/M	N/M	N/M
2013	CVC Capital Partners VI, L.P.	2/18/2014		17,298,210	6,402,538		34,752		6,330,601	0.99x	(0.62%)	5.78%	(6.40%)
2013	Landmark Equity Partners XV, L.P.	10/30/2013		19,000,000	6,580,279		2,604,445		5,057,142	1.16x	11.06%	7.73%	3.33%
2013	Landmark Equity Partners XV, L.P Side Car	12/24/2013		6,000,000	2,649,559		712,242		2,616,782	1.26x	16.11%	3.69%	12.42%
2014	ASF VI, L.P.	5/9/2014		15,000,000	7,262,707		390,182		8,342,067	1.20x	15.18%	5.45%	9.73%
2014	ASF VI NYC Co-Invest, L.P.	5/9/2014		5,000,000	3,153,934		706,516		3,290,523	1.27x	18.30%	1.82%	16.48%
2014	Centerbridge Capital Partners III, L.P.	5/21/2015		2,500,000	665,696		26,353		701,316	1.09x	N/M	N/M	N/M
2014	Crestview Partners III, L.P.	3/3/2015		15,000,000	3,434,581		56,712		2,967,595	0.88x	N/M	N/M	N/M
2014	Crestview Partners III (Co-Investment B), L.P.	12/17/2015		5,000,000	1,676,108		70,233		1,661,847	1.03x	N/M	N/M	N/M
2014	Lexington Capital Partners VIII, L.P.	1/8/2015		20,000,000	4,425,887		871,910		4,705,175	1.26x	N/M	N/M	N/M
2014	Siris Partners III, L.P.	5/4/2015		3,500,000	541,165		2,699		473,907	0.88x	N/M	N/M	N/M
2014	Vista Equity Partners Fund V, L.P.	9/8/2014		25,000,000	21,955,880		4,351,955		19,585,319	1.09x	N/M	N/M	N/M
2012	NYCBERS - 2012 Emerging Manager Program*	10/31/2014		25,000,000	7,279,825		76,988		7,651,467	1.06x	N/M	N/M	N/M
2015	American Securities Partners VII, L.P.	1/19/2016		8,000,000	73,119		73,119		-	1.00x	N/M	N/M	N/M
2015	ASF VII, L.P.	12/29/2015		10,000,000	752,861		55,395		819,818	1.16x	N/M	N/M	N/M
2015	ASF VII B NYC Co-Invest, L.P.	12/29/2015		6,000,000	600		-		600	1.00x	N/M	N/M	N/M
2015	NYCBERS - 2015 Emerging Manager Program**	2/22/2016		30,000,000	804,267		-		774,929	0.96x	N/M	N/M	N/M
2015	Warburg Pincus Private Equity XII, L.P.	12/21/2015		21,500,000	1,505,000		12,576		1,281,400	0.86x	N/M	N/M	N/M
2015	Welsh, Carson, Anderson & Stowe XII, L.P.	8/26/2015		10,000,000	2,625,430		-		2,742,009	1.04x	N/M	N/M	N/M
2015	Bridgepoint Europe V, L.P.	2/8/2016		8,321,359	1,734,163		-		1,777,204	1.02x	N/M	N/M	N/M
2015	Bridgepoint Europe V Co-Invest	N/A		2,770,851	-		-		-	N/A	N/M	N/M	N/M
2015	EQT VII, L.P.	1/8/2016		16,693,355	3,150,115		-		2,781,054	0.88x	N/M	N/M	N/M
2016	Ares Corporate Opportunities Fund V, L.P.	N/A		10,000,000	· · · · · ·		-		-	N/A	N/M	N/M	N/M
2016	Green Equity Investors VII, L.P.	N/A		10,000,000	_		-		-	N/A	N/A	N/A	N/A
2016	Vista Equity Partners Fund VI, L.P.	6/28/2016		16,000,000	1,919,658		-		1,938,298	1.01x	N/A	N/A	N/A
2016	Apax IX USD, L.P.	N/A		13,000,000	-		-		-	N/A	N/A	N/A	N/A
2016	BC European Capital X, L.P.	N/A		11,083,403	_		_		-	N/A	N/A	N/A	N/A
2016	BC European Capital X Metro Co-Investment L.P.	N/A		4,433,361	-		_		-	N/A	N/A	N/A	, N/A
Total Po		,,,	\$	564,300,538	\$ 255,388,726	\$ :	119,488,408	\$	229,052,685	1.36x	10.03%	9.05%	0.98%
Vintage Year	Investment	First Drawdown		Committed Capital	Net Contributed		t Distributed Capital		Market Value	Multiple	IRR <sup>1</sup>	PME Benchmark <sup>2</sup>	PME Spread <sup>3</sup>
					Capital		- Supreur					- Schemmark	
	ments Closed Subsequent to as of Date	N. / 2	_	0.000.000						51/5	/ -		21/2
2016	FTV, L.P.	N/A	\$	3,500,000	-		-		-	N/A	N/A	N/A	N/A
Total Co	mmitments Closed Subsequent to as of Date		\$	3,500,000	<b>\$</b> -	\$	-	\$	-	N/A	N/A	N/A	N/A

<sup>\*</sup>Please note that the NYCBERS - 2012 Emerging Manager Program total commitment amount includes the full amount allocated to the Program, of which \$14.7 million has been committed as of June 30, 2016.

<sup>\*\*</sup>Please note that the NYCBERS - 2015 Emerging Manager Program total commitment amount includes the full amount allocated to the Program, of which \$4 million has been committed as of June 30, 2016.

<sup>&</sup>lt;sup>1</sup>Performance for funds with less than 8 quarters of activity is not yet meaningful.

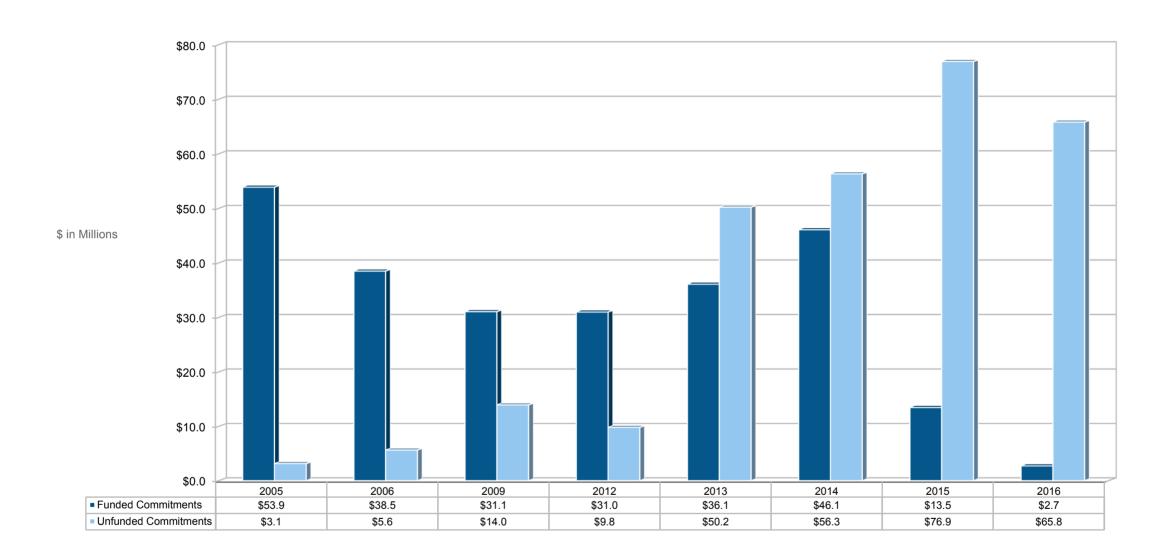
<sup>2</sup> The total PME is the Russell 3000 Total Return Index and incorporates the PME + methodology for all partnerships where distributions have occurred, and incorporates the PME methodologies for those partnerships that have not yet had any distributions to date. The fund PME is the Russell

<sup>3000</sup> Total Return Index and incorporates the PME II methodology for all partnerships where distributions have occurred.

<sup>3</sup>PME Spread is the percentage difference between the IRR and PME Benchmark for each respective partnership.

Note: Where available, June 30, 2016 reported valuations were used. In the absense of June 30, 2016 reported values, market values have been adjusted forward using interim cashflows through June 30, 2016. The IRR calculated in the early years of a fund is not meaningful given the j-curve effect. The aggregate portfolio performance figures for IRR and multiple are as of June 30, 2016.

# NYC Board of Education Retirement System Commitments By Vintage Year As of >i bY 3\$, 2016



Funded Commitments exclude additional fees.
Unfunded Commitments include recallable returns of capital.

Second Quarter 2016 Report



## Section 4:

Funds-of-Funds Review

### Second Quarter 2016 Report

### Mesirow Financial Private Equity Partnership Fund III, L.P.

### **Fund Overview**

The Partnership, a 2005 vintage year Partnership, was formed on April 6, 2005 with the intent of investing capital in various private equity limited partnerships. As of June 30, 2016, the Partnership has invested in 42 underlying funds.

### **Partnership Summary**

NYC Board of Education Retirement System committed \$57.0 million to the Mesirow Financial Private Equity Partnership Fund III, L.P. and as of June 30, 2016, has generated a 8.79% IRR and a Total Value Multiple of 1.67x from its investment. The Partnership is well diversified strategically.

PerformanceSummary					
\$ in millions	3/31/2016	6/30/2016	Change		
Capital Commitment	\$57.0	\$57.0	-		
Unfunded Commitment	\$3.1	\$3.1	-		
Capital Contributed	\$54.2	\$54.2	-		
Capital Distributed	\$57.6	\$60.7	\$3.1		
Market Value	\$32.6	\$29.6	(\$3.0)		
Total Value Multiple	1.66x	1.67x	0.01x		
Since Inception IRR	8.88%	8.79%	(9 bps)		

	Distressed/ Turnaround 17%	Other 5%
Venture Capital 33%		Co-Invest 1%
		Corporate Finance/Buyout 44%

Strategic Diversification by Exposed Market Value As of June 30, 2016

Time Horizon Performance							
6-Month IRR	1-Year IRR	3-Year IRR	5-Year IRR	Since Inception IRR			
(2.26%)	(0.62%)	15.42%	10.82%	8.79%			

<sup>\*</sup>Strategic exposure to 'Other' consists of underlying partnerships for which investment strategies are not disclosed in the quarter end financial statements.

### **Performance Drivers**

When compared to global private equity funds of the same vintage, Mesirow Financial Private Equity Partnership Fund III, L.P. is underperforming the upper quartile benchmark<sup>1</sup> by 142 bps and is outperforming the median quartile benchmark<sup>1</sup> by 334 bps on a since inception basis, as of June 30, 2016.

Outperformance of the median quartile benchmark<sup>1</sup> is being driven by nine underlying funds, all of which are being held above a 2.0x total value multiple as of June 30, 2016. The nine underlying partnerships are equally spread across buyout, venture capital and distressed/turnaround strategies and represent roughly 21.6% of underlying commitments and 30.3% of underlying market value.

Underperformance when compared to the upper quartile benchmark<sup>1</sup> is being driven by thirteen underlying funds, all of which are being held below a 1.0x total value multiple as of June 30, 2016. Six of the thirteen funds are European focused, which were established in tough vintage years and have been further depressed by exchange rates. The thirteen funds represent roughly 30.5% of underlying commitments and 11.7% of underlying market value.

<sup>&</sup>lt;sup>1</sup>ThomsonOne/Cambridge – Global All Private Equity IRR as of June 30, 2016



### Second Quarter 2016 Report

### Mesirow Financial Private Equity Partnership Fund IV, L.P.

### **Fund Overview**

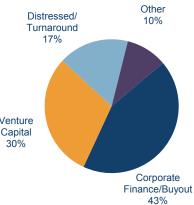
The Partnership, a 2006 vintage year Partnership, was formed on November 21, 2006 with the intent of investing capital in various private equity limited partnerships. As of June 30, 2016, the Partnership has invested in 53 underlying funds.

### **Partnership Summary**

NYC Board of Education Retirement System committed \$25.0 million to the Mesirow Financial Private Equity Partnership Fund IV, L.P. and as of June 30, 2016, has generated a 9.98% IRR and a Total Value Multiple of 1.57x from its investment. The Partnership is well diversified strategically.

PerformanceSummary						
\$ in millions	3/31/2016	6/30/2016	Change			
Capital Commitment	\$25.0	\$25.0	-			
Unfunded Commitment	\$3.5	\$3.5	-			
Capital Contributed	\$21.7	\$21.7	-			
Capital Distributed	\$14.8	\$15.6	\$0.8			
Market Value	\$18.7	\$18.4	(\$0.3)			
Total Value Multiple	1.54x	1.57x	0.03x			
Since Inception IRR	9.88%	9.98%	10 bps			

\$0.8	
(\$0.3)	
0.03x	
10 bps	Vei Ca
	30
otion	



Strategic Diversification by Exposed Market Value As of June 30, 2016

Time Horizon Performance							
6-Month IRR	1-Year IRR	3-Year IRR	5-Year IRR	Since Inception IRR			
2.30%	4.74%	15.74%	12.45%	9.98%			

<sup>\*</sup>Strategic exposure to 'Other' consists of underlying partnerships for which investment strategies are not disclosed in the quarter end financial statements.

### **Performance Drivers**

When compared to global private equity funds of the same vintage, Mesirow Financial Private Equity Partnership Fund IV, L.P. is underperforming the upper quartile benchmark<sup>1</sup> by 89 bps and is outperforming the median quartile benchmark<sup>1</sup> by 400 bps on a since inception basis, as of June 30, 2016.

Outperformance of the median quartile benchmark<sup>1</sup> is being driven by nine underlying funds, all of which are being held above a 2.0x total value multiple as of June 30, 2016. These nine funds represent roughly 15.7% of underlying commitments and 19.8% of underlying market value.

Underperformance when compared to the upper quartile benchmark<sup>1</sup> is being driven by five underlying funds, which are being held at or below a 1.0x total value multiple as of June 30, 2016. Three of the funds are European focused, and were established in tough vintage years and have been further hurt by exchange rates. The five funds represent roughly 11.7% of underlying commitments and 5.5% of underlying market value.

<sup>&</sup>lt;sup>1</sup>ThomsonOne/Cambridge – Global All Private Equity IRR as of June 30, 2016

### Second Quarter 2016 Report

### Mesirow Financial Private Equity Partnership Fund V, L.P.

### **Fund Overview**

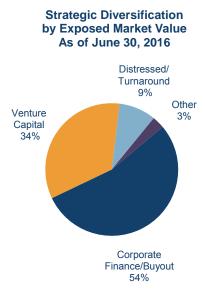
The Partnership, a 2009 vintage year Partnership, was formed on November 5, 2008 with the intent of investing capital in various private equity limited partnerships. As of June 30, 2016, the Partnership has invested in 55 underlying funds.

### **Partnership Summary**

NYC Board of Education Retirement System committed \$45.0 million to the Mesirow Financial Private Equity Partnership Fund V, L.P. and as of June 30, 2016, has generated a 15.53% IRR and a Total Value Multiple of 1.56x from its investment. The Partnership is well diversified strategically.

PerformanceSummary							
\$ in millions	3/31/2016	6/30/2016	Change				
Capital Commitment	\$45.0	\$45.0	-				
Unfunded Commitment	\$14.0	\$14.0	-				
Capital Contributed	\$31.5	\$31.5	-				
Capital Distributed	\$9.0	\$9.0	-				
Market Value	\$38.5	\$40.2	\$1.7				
Total Value Multiple	1.51x	1.56x	0.05x				
Since Inception IRR	15.34%	15.53%	19 bps				

Time Horizon Performance						
6-Month IRR	1-Year IRR	3-Year IRR	5-Year IRR	Since Inception IRR		
4.33%	9.44%	17.68%	15.18%	15.53%		



<sup>\*</sup>Strategic exposure to 'Other' consists of underlying partnerships for which investment strategies are not disclosed in the quarter end financial statements.

### **Performance Drivers**

When compared to global private equity funds of the same vintage, Mesirow Financial Private Equity Partnership Fund V, L.P. is underperforming the upper quartile benchmark<sup>1</sup> by 356 bps and outperforming the median quartile benchmark<sup>1</sup> by 294 bps on a since inception basis, as of June 30, 2016.

Outperformance of the median quartile benchmark<sup>1</sup> is being driven by five underlying funds, all of which are being held above a 2.0x total value multiple as of June 30, 2016. Three of the five underlying funds focus on venture capital investments. These top drivers represent roughly 7.5% of underlying commitments and 15.0% of underlying market value.

Underperformance when compared to the upper quartile benchmark<sup>1</sup> is being driven by five underlying funds, all of which are being held at or below a 1.0x total value multiple as of June 30, 2016. The five funds represent roughly 8.4% of underlying commitments and 5.9% of underlying market value.

<sup>&</sup>lt;sup>1</sup>ThomsonOne/Cambridge – Global All Private Equity IRR as of June 30, 2016

### New York Fairview Private Equity Fund, L.P.

### **Fund Overview**

The Partnership, a 2006 vintage year Partnership, was formed on May 22, 2006 with the intent of investing in emerging private equity funds with aggregate capital commitments of no more than \$300 million. As of June 30, 2016, the Partnership has invested in 6 underlying funds.

### **Partnership Summary**

NYC Board of Education Retirement System committed \$19.0 million to the New York Fairview Private Equity Fund, L.P. and as of June 30, 2016 has generated a 6.77% IRR and a Total Value Multiple of 1.38x from its investment. The Partnership is heavily weighted towards Corporate Finance/Buyout, with roughly 70% of the underlying funds exposed market value attributable to this sector.

PerformanceSummary							
\$ in millions	3/31/2016	6/30/2016	Change				
Capital Commitment	\$19.0	\$19.0	-				
Unfunded Commitment	\$2.1	\$2.1	-				
Capital Contributed	\$17.3	\$17.3	-				
Capital Distributed	\$14.1	\$14.2	\$0.1				
Market Value	\$9.7	\$9.6	(\$0.1)				
Total Value Multiple	1.37x	1.38x	0.01x				
Since Inception IRR	6.78%	6.77%	(1 bps)				

Time Horizon Performance							
6-Month IRR	1-Year IRR	3-Year IRR	5-Year IRR	Since Inception IRR			
0.20%	10.13%	10.67%	9.29%	6.77%			





### **Performance Drivers**

When compared to global private equity funds of the same vintage, New York Fairview Private Equity Fund, L.P. is underperforming the upper quartile benchmark<sup>1</sup> by 410 bps and outperforming the median quartile benchmark<sup>1</sup> by 79 bps, on a since inception basis, as of June 30, 2016.

Underlying fund performance has been mixed, with two funds performing well and being held above a 2.0x total value multiple, one fund being held below a 1.0x total value multiple. The three remaining underlying funds are being held at or above 1.0x total value multiple as of June 30, 2016.

<sup>&</sup>lt;sup>1</sup>ThomsonOne/Cambridge – Global All Private Equity IRR as of June 30, 2016

Second Quarter 2016 Report



## Appendix A:

Glossary of Terms

### Second Quarter 2016 Report

**Additional Fees:** The amount of capital an investor pays into a fund/investment that does not count against the investors' commitment. Additional fees typically consist of management fees or late-closing interest expense.

**Capital Committed:** An investor's financial obligation to provide a set amount of capital to the investment.

**Capital Contributed:** Capital contributed from an investor's capital commitment to fund partnership investments, organizational expenses and management fees.

Capital Distributed: Cash or stock disbursed to the investors of an investment.

**Co/Direct Investment:** A direct investment is a purchased interest of an operating company. A co-investment is a direct investment made alongside a partnership.

**Corporate Finance/Buyout:** Funds seeking to make controlling and non-controlling investments in established companies which have the potential to achieve greater value through improved performance.

Cost Basis: Capital contributions less return of principal.

Fund-of-Funds: An investment vehicle which invests in other private equity partnerships.

Fund/Investment Size: The total amount of capital committed by investors to a fund.

**Investment Category:** Used to identify investments in one of the following categories: co/direct investments, fund-of-funds, primary funds, secondary fund-of-funds or secondary purchases.

**Investment Strategy:** A sub-classification of a partnership's investment type, such as Co/Direct Investment, Corporate Finance/Buyout, Mezzanine, Real Estate, Special Situation, Venture Capital.

**Life Cycle Period:** The current stage of a partnership depending on the percentage contributed to date. Life cycle periods are investment and realization.

**Mezzanine:** An investment strategy involving the purchase of subordinated debt. These securities exist between the senior debt and equity of a holding's capital structure. Subordinated debt carries a lower level of risk than pure equity structures because they generate current income and have a more senior position in the company's capital structure.

**Net Internal Rate Of Return ("IRR"):** The discount rate that equates the net present value of the partnership's cash outflows with its inflows and residual value at the time of calculation. The calculation is net of management fees and the general partner's carried interest.

**Originator:** The institution responsible for recommending a client commit to an investment.

**Ownership Percentage:** The investor's percent of ownership as measured by capital committed divided by fund/investment size.

Paid-In Capital: The amount of capital an investor has contributed to a partnership, which includes capital contributions and additional fees.

**Pooled Average IRR:** An IRR calculation which aggregates cash flows (paid-in capital and capital distributed) and the reported market values of each investment within a portfolio to create one portfolio investment and return.

### Second Quarter 2016 Report

**Portfolio Holding Exposure:** The limited partner's pro rata allocation to an underlying investment based on the ownership percentage of the partnership.

**Primary Fund:** Defines when the investor acquired an interest in the partnership. Primary fund is the investment category when an investor participates in a closing at the inception of the partnership.

**Private Equity Partnership:** A professionally managed pool of capital that generally invests in unlisted companies or securities. Common investment strategies include corporate finance/buyout, mezzanine, special situations and venture capital.

Realized Multiple: Ratio of cumulative distributions to paid-in capital.

**Return On Investment ("ROI"):** A calculation based on the total value (market value plus distributions) divided by paid-in capital for an investment.

**Reported Market Value:** The investment's capital account balance at quarter end, which includes the general partner's reported value of the underlying holdings and other assets and liabilities.

**Secondary Fund-of-Funds:** A private equity vehicle formed to purchase active partnership interests from an investor.

**Secondary Purchase:** A purchase of an existing partnership interest or pool of partnership interests from an investor.

**Special Situation:** Partnerships that invest using a unique strategy. Examples include distressed and turnaround, industry focused and multi-stage partnerships.

Total Exposure: Calculated by the summation of market value and unfunded commitments.

**Venture Capital:** An investment strategy that provides start-up or growth capital to companies in the early stages of development. Venture investments generally involve a greater degree of risk, but have the potential for higher returns.

**Vintage Year:** The year in which a partnership makes its first capital call for an investment into a portfolio company/holding.

Second Quarter 2016 Report



# Appendix B:

**Disclosure Statement** 

### Second Quarter 2016 Report

Non-public information contained in this report is confidential and intended solely for dissemination to NYC Board of Education Retirement System and/or its Affiliates. Hamilton Lane has prepared this report to enable NYC Board of Education Retirement System and/or its Affiliates to assess the performance and status of its alternative investment portfolio. Hamilton Lane hereby disclaims any liability resulting from any unauthorized dissemination of the attached information.

The information contained in this report may include forward-looking statements regarding the funds presented or their portfolio companies. Forward-looking statements include a number of risks, uncertainties and other factors beyond the control of the funds or the portfolio companies, which may result in material differences in actual results, performance or other expectations. The information presented is not a complete analysis of every material fact concerning each fund or each company. The opinions, estimates and analyses reflect our current judgment, which may change in the future.

All opinions, estimates and forecasts of future performance or other events contained herein are based on information available to Hamilton Lane as of the date of this presentation and are subject to change. Past performance of the investments described herein is not indicative of future results. Certain of the information included in this presentation has not been reviewed or audited by independent public accountants. Certain information included herein has been obtained from sources that Hamilton Lane believes to be reliable but the accuracy of such information cannot be guaranteed.

The past performance information contained in this report is not necessarily indicative of future results and there is no assurance that the funds will achieve comparable results or that they will be able to implement their investment strategy or achieve their investment objectives. The actual realized value of currently unrealized investments will depend on a variety of factors, including future operating results, the value of the assets and market conditions at the time of disposition, any related transaction costs and the timing and manner of sale, all of which may differ from the assumptions and circumstances on which the current unrealized valuations are based.

Any tables, graphs or charts relating to past performance included in this report are intended only to illustrate the performance of the funds or the portfolio companies referred to for the historical periods shown. Such tables, graphs and charts are not intended to predict future performance and should not be used as the basis for an investment decision.



### **Contact Information**

### Philadelphia

One Presidential Blvd., 4th Floor Bala Cynwyd, PA 19004 USA

+1 610 934 2222

### ▶ Rio de Janeiro

Av. Niemeyer 2, Sala 102 Leblon Rio de Janeiro Brasil 22450-220 +55 21 3520 8903

#### New York

610 Fifth Avenue, Suite 401 New York, NY 10020 USA

+1 212 752 7667

### ▶ Tokyo

17F, Imperial Hotel Tower 1-1-1, Uchisaiwai-cho, Chiyoda-ku Tokyo 100-0011 Japan

+81 (0) 3 3580 4000

#### London

8-10 Great George Street London SW1P 3AE United Kingdom +44 (0) 207 340 0100

### ▶ San Francisco

200 California Street, Suite 400 San Francisco, CA 94111 USA

+1 415 365 1056

### ▶ Fort Lauderdale

200 SW 1st Avenue, Suite 880 Ft. Lauderdale, FL 33301 USA

+1 954 745 2780

### ▶ Las Vegas

3753 Howard Hughes Parkway Suite 200 Las Vegas, NV 89169 USA +1 702 784 7690

### **▶** Hong Kong

Room 1001-3, 10th Floor St. George's Building 2 Ice House Street Central Hong Kong, China +852 3987 7191

### ▶ San Diego

7777 Fay Avenue, Suite 201 La Jolla, CA 92037 USA

+1 858 410 9967

### ► Tel Aviv

14 Shenkar Street Nolton House Herzliya Pituach, 46733 P.O. Box 12279 Israel

+972 9 958 6670

#### Seoul

16/17 FI., Posco P&S Tower Teheran-ro 134, Gangnam-Gu Seoul 135-923, Republic of Korea +82 2 2015 7679





Executive Summary: Second Quarter 2016 Performance Measurement Report
Real Estate

### **Portfolio Profile**

**Total Plan Assets** 

The New York City Board of Education Retirement System has allocated 9.0% of the total plan to Real Estate. The Real Estate Portfolio's objective is to generate a total net return that exceeds the NFI-ODCE +100 bps total net return measured over full market cycles.

### Portfolio Statistics (June 30, 2016)

Target Real Estate Allocation (%)

Target Real Estate Allocation (\$)

Total Real Estate Market Value

Real Estate Unfunded Commitments

Total Real Estate Exposure

\$355.0 million

Asia

Number of Investments

Number of Managers

#### Net Returns (as of June 30, 2016)

2Q16 Time-Weighted Net Return: 1
1 Year Time Weighted Net Return: 12

3 Year Time Weighted Net Return: 13.0% Inception-to-Date (ITD) Time-Weighted: 9.3%

ITD Net IRR: 12.1%

ITD Net Equity Multiple: 1.3x

### **Investment Guidelines**

Style Sector: Target •5.0% Core/Core Plus
•4.0% Non-Core

Benchmark

NFI-ODCE Index +100 bps net over full market cycles
Region Diversification
Investment Diversification
Manager Diversification
Limit 15% to a single investment
Limit 15% to a single manager
Leverage

NFI-ODCE Index +100 bps net over full market cycles

Maximum 25% Int' I
Limit 15% to a single manager

Limit 15% to a single manager

#### **Second Quarter Investment Activity**

During the Quarter, the Board made a \$23.1 million commitment to an opportunistic global distressed commercial real estate credit fund and a \$10.0 million commitment to a U.S. focused non-core commercial real estate credit specialist.

### **OVERVIEW**

\$4.5 billion

18

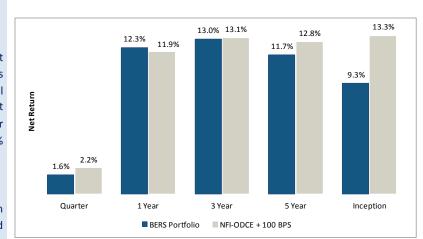
Global investment activity for 2Q16 was generally modest, coming in at \$154 billion, bringing the first half down 10% y/y compared to 2015. U.S. cities continue to be attractive targets for global capital with New York and Los Angeles (1st and 3rd respectively), accounting for 12% of global transactions. Foreign investment represented approximately 12% of total U.S. activity, with China overtaking Canada as the primary foreign capital source year-to-date. On average, industrial and multifamily transaction cap rates were essentially flat for the first half of 2016 while hotel and office saw 15 and 11 basis point expansions respectively.

Direct Commercial Real Estate Investment - Regional Volumes, 2015-2016

n n		Q1 16	Q2 16	% Change Q1 16 - Q2 16	Q2 15	% Change Q2 15 - Q2 16	H1 2015	H1 2016	% Change H1 2015 - H1 2016
n	Americas	61	69	13%	80	-14%	153	130	-15%
"	EMEA	51	57	12%	58	-2%	115	109	-5%
n	Asia Pacific	25	28	12%	31	-10%	56	54	-4%
	Total	137	154	12%	169	-9%	324	293	-10%
9									

Source: Jones Lang LaSalle, July 2016

1.6% The New York City Board of Education Retirement System ("NYCBERS") Real Estate Portfolio is well positioned to take advantage of conditions in the real estate marketplace and has been an active investor in the most recent vintage years. At the end of the Second Quarter 2016, the Portfolio achieved a total gross return of 2.1% which was comprised of 1.2% income and 0.9% appreciation. The net return for the Quarter was 1.6%. A detailed analysis of the Portfolios real estate performance is found later in this Executive Summary.



Executive Summary: Second Quarter 2016 Performance Measurement Report
Real Estate

### FUNDING AND COMPOSITION

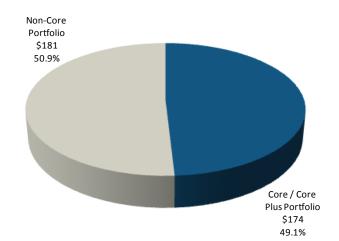
At the end of the Second Quarter, the Portfolio was funded at \$242.7 million, or 5.4% of total plan assets. A total of \$112.3 million in unfunded commitments are still outstanding. Unfunded commitments are up from \$88.3 million as of First Quarter 2016. New commitment activity has accelerated over the past several months and the trend will continue throughout 2016.

New contributions for the Quarter totaled \$9.2 million, offset by \$4.3 million in distributions and withdrawals. Distributions were weighted to the Non-Core sector.

Shown in the pie chart to the right is the current risk sector exposure calculated by Market Value + Unfunded Commitments. The Core/ Core Plus component accounts for 49.1% of the Portfolio exposure during the Quarter. The Non-Core component accounts for 50.9% of the Portfolio exposure.

A more detailed break-down of the Portfolio Composition is shown in the table below. Attached as Exhibit A is a matrix which demonstrates compliance with various Investment Policy Statement guidelines.

### **Real Estate Exposure**



New York City	Board of Education Retirement System						
Total Plan Assets	6/30/2016	4,495					
Real Estate Allocation (%)		9.0					
Real Estate Allocation (\$)		404.6					
Core/Core Plus Allocation (%)		5.0					
Core/Core Plus Allocation (\$)		225					
Non-Core Allocation (%)		4.0					
Non-Core Allocation (\$)		180					
	Style Sector Allocation						
Funded (Market Value) Core / Core Plus Portfolio		147					
Funded (Market Value) Non-Core Portfolio		96					
Unfunded Core / Core Plus Portfolio	27						
Unfunded Non-Core Portfolio	funded Non-Core Portfolio						
Funded (Mar	ket Value) and Committed Statistics						
Core / Core Plus Portfolio		49.1%					
Non-Core Portfolio		50.9%					
Core/Core Plus Committed		174					
Non-Core Committed		181					
\$ Committed		355					
% Committed on Real Estate Allocation		87.7%					
% Committed on Total Plan Assets		7.9%					
Func	ded (Market Value) Statistics						
% Core/Core Plus Funded (Market Value) of Total F	Plan Assets	3.3%					
% Non-Core Funded (Market Value) of Total Plan A	Assets	2.1%					
% Funded (Market Value) of Total Plan Assets		5.4%					
% Funded (Market Value) of Total Real Estate Allo	ocation	60.0%					

Executive Summary: Second Quarter 2016 Performance Measurement Report

Real Estate

### **PERFORMANCE**

During the Quarter under review, the NYCBERS Real Estate Portfolio produced a 2.1% total gross return. The total net return for the Quarter was 1.6%. On a rolling one-year basis the total gross return of 14.3% was recorded. On a net basis the total return was 12.3%. The benchmark return contemplates a 100 bps premium over the ODCE net return over full market cycles. This benchmark is not meaningful at this point in time as the NYCBERS Portfolio is in its infancy. The various components of the Portfolio returns are depicted in the chart below.

#### Core/Core Plus

As of June 30, 2016 the market value of the Core/ Core Plus Portfolio was \$147.1 million, or 60.6% on an invested basis. On a funded and committed basis, the Core/ Core Plus Portfolio totaled \$174.3 million, or 49.1% of the total Portfolio. The Core/ Core plus Portfolio generated a 1.9% total gross return for the Quarter comprised of 1.2% in income and 0.7% in appreciation. The total net return for the Quarter was 1.7%.

The most significant contributor to the Quarterly return for the Core/Core Plus Portfolio was LaSalle Property Fund, which added 0.07% to the total return. The largest detractor from the Core/Core Plus Portfolio was UBS Trumbull Property Fund, which detracted (0.1)% from the total net return.

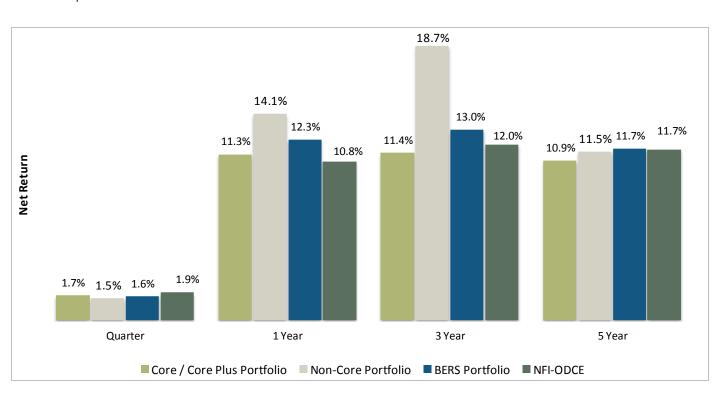
The Core/Core Plus Portfolio achieved a 11.3% net return over the one-year period ending June 30, 2016 and has achieved a 11.2% net return since the inception of the Core/ Core Plus Portfolio in 2011.

### Non-Core

As of June 30, 2016 the market value of the Non-Core Portfolio was \$95.6 million, or 39.4% on an invested basis. On a funded and committed basis, the Non-Core Portfolio totaled \$180.7 million, or 50.9% of the total Portfolio. The Non-Core Portfolio generated a 2.3% total gross return for the Quarter comprised of 1.1% in income and 1.2% in appreciation. The total net return for the Quarter was 1.5%.

Of the eleven Non-Core Funds that contributed to the Quarterly return, H/2 Special Opportunities Fund III contributed the most, adding 0.5%. Blackstone Real Estate Partners Europe IV was the largest detractor for the Quarter, taking away (1.1)% from the overall performance of the Non-Core Portfolio.

The Non-Core Portfolio achieved an 14.1% net return over the one-year period ending June 30, 2016 and has achieved an 11.5% net return since the inception of the Non-Core Portfolio in 2011.



Executive Summary: Second Quarter 2016 Performance Measurement Report
Real Estate

### **PERFORMANCE**

### Portfolio Performance

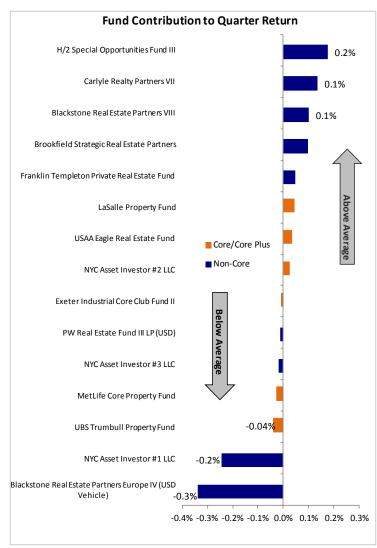
At the end of the Second Quarter 2016, the Portfolio had a cumulative market value of \$242.7 million. Total market value plus unfunded commitments was \$355.0 million, or 87.8% of the real estate allocation. During the Quarter, the Portfolio achieved a total gross return of 2.1% which was comprised of 1.2% income and 0.9% appreciation. The Portfolio achieved a total net return of 1.6%. Since inception, the Portfolio has a net IRR of 12.1% and an equity multiple of 1.3x as of June 30, 2016. Note, attached as Exhibit B are performance metrics relating to each investment within the Portfolio.

The Quarterly return was driven by H/2 Special Opportunities Fund III, which contributed 0.2% to the overall performance. The primary laggard in the Portfolio was Blackstone Real Estate Partners Europe IV, which detracted (0.3%). Brief reviews of the Funds in the Portfolio are found below. Note, that attached as Exhibit C is a chart relating to fund contributions to returns over the one-year period.

H/2 Special Opportunities Fund III. H/2 Special Opportunities Fund III produced a total gross return of 8.2%, comprised of 3.9% in income and 4.3% in appreciation. The net return after fees was 6.8%. Initial closing consisted of \$1.3 billion, subsequently increasing to \$1.5 billion. Another closing was held in October 2015 where total commitments increased to \$1.5 billion. As of June 30, 2016, a total of \$741 million has been called.

Carlyle Realty Partners VII. Carlyle VII had a total gross return of 6.5% comprised of 0.1% in income and 6.4% in appreciation. The net return after fees was 4.8%. As of June 30, 2016, Carlyle VII has committed \$2.2 billion of Fund equity to 116 investments. Proposed pipeline investments include opportunities that would require up to \$801 million of Fund equity. Investments made in the Quarter totaled \$152.5 million in Fund equity, the largest of which was a joint venture acquisition of a combined 11,510 sf. retail property in a prime Manhattan location.

Blackstone Real Estate Partners VIII. BREP VIII had a total Quarterly return of 7.7% comprised of 0.1% in income and 7.6% in appreciation. The net return after fees was 5.5%. During the Quarter, the portfolio increased in valuation by \$473 million with \$32.7 million distributed to LPs. Investments made during the Second Quarter totaled \$796 million and across major property types within the U.S. Europe and Asia. The largest investment was in a retail portfolio of 49 grocery store anchored shopping centers located across the U.S.

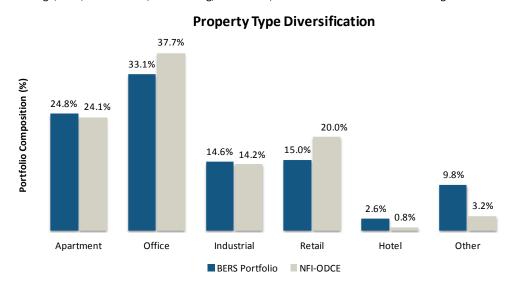


Executive Summary: Second Quarter 2016 Performance Measurement Report

Real Estate

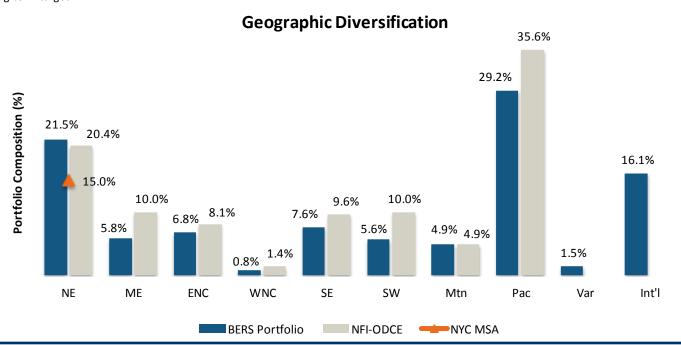
### PROPERTY TYPE DIVERSIFICATION

The diversification of the current Portfolio by property type is shown below and compared to the diversification of the NCREIF-ODCE at the end of the Quarter. Relative to the ODCE, the Portfolio is underweight to office and retail. The Portfolio has a modest overweight to apartment, industrial, hotel, and other property types which includes debt-related investments and can include other investments within diversified funds in for sale residential, self storage, land, data centers, senior living, healthcare, medical office and student housing.



### GEOGRAPHIC DIVERSIFICATION

The diversification of the current funded Portfolio by geographic region is shown below and compared to the diversification of the NFI-ODCE at the end of the Quarter. The ODCE is a US-only index. The domestic portion of the Portfolio is well diversified relative to the ODCE with a slight overweight to the Northeast. The 16.1% international exposure is appropriate for the risk and return profile of NYCBERS and consistent with our long-term target.



Executive Summary: Second Quarter 2016 Performance Measurement Report
Real Estate

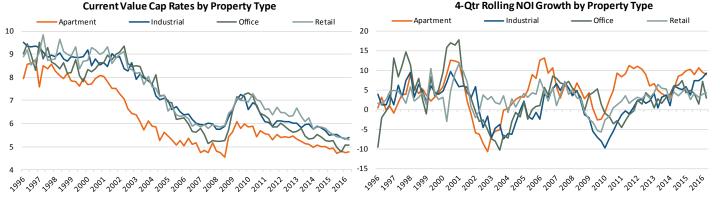
### **MARKET UPDATE**

#### **General**

- Economic activity increased during the second quarter of 2016 at an annual rate of 1.1%, 2% over 2Q15 levels. Growth during the quarter was chiefly supported by positive contributions by the consumer, with fractional help from trade. Favorable employment trends with moderate wage growth (+2.5% y/y) and strong sentiment (+4.4% annual rate) helped buoy consumer spending. Business investment continues to weigh on trade, reducing growth by 9.7% during the quarter. Leading indicators for the business sector; Purchasing Managers Index (49.4 with 50 and above signaling expansion), Durable Goods Orders (-6% y/y), and Industrial Production Index, point to more of the same to come from subsequent quarters.
- Macro indicators for U.S. real estate came in tepid during 2Q16 with residential housing starts and total construction investment flat to marginally down y/y. Building permits, which signal future construction activity, also fell 9% compared to same period 2015.

#### **Commercial Real Estate**

- 2Q16 saw \$63.5 billion in commercial real estate transaction volume or 41% of global activity. While solid, this represented a 16% drop compared to record 2015 levels. The U.S. decline was on trend with the broad moderation of global transaction activity during the quarter.
- CMBS issuances slowed to \$11.4 billion in 2Q16, less than half of the \$27.5 billion a year ago. Credit conditions remain relatively unchanged from 1Q, with the Fed's survey of senior loan officers showing stronger demand but tighter standards for commercial real estate loans.
- U.S. cities continue to be attractive targets for global investment capital. New York and Los Angeles (1st and 3rd respectively), accounted for 12% of global transactions. Foreign investment represented approximately 12% of total U.S. activity, with China overtaking Canada as the primary foreign capital source year-to-date.
- On average, industrial and multifamily transaction cap rates were essentially flat (0 and 2 bps compression respectively) for the first half of 2016 while hotel and office saw 15 and 11 basis point expansions respectively.



Executive Summary: Second Quarter 2016 Performance Measurement Report
Real Estate

### **EXHIBIT A: COMPLIANCE MATRIX**

Category	Requirement	Portfolio Status
Benchmark	NFI-ODCE (net) +100 bps over full market cycles	Portfolio returns outperform the benchmark over the one-year time period.
	Core/Core Plus (5% of RE Allocation)	The portfolio is funded (market value) and committed at 87.8% of real estate allocation with a portfolio composition of
Portfolio Composition	Non Core (4% of RE Allocation)	49.1% core/core plus and 50.9% non-core. Based on market value, the core/core plus portfolio is funded at 60.6% and the non- core portfolio is funded at 39.4%.
Real Estate Allocation	Target of 9.0%	Funded (market value) and committed dollars place the portfolio at 7.9 % of total
11001 2010 107 117 107 107 107 107 107 107 107	Currently Funded at 5.3%	plan assets.
Property Type Diversification	Up to 40% Multifamily Up to 35% Industrial Up to 45% Office Up to 35% Retail Up to 25% Hotel Up to 20% Other	All property type locations are in compliance.
Geographic Diversification	Diversified geographically Max 25% Ex-US	All geographic type locations are in compliance
LTV	65%	Portfolio is in early stages of funding, but is in compliance (39.2 %).
Manager Exposure	15% of real estate allocation	N/A

Executive Summary: Second Quarter 2016 Performance Measurement Report Real Estate

### **EXHIBIT B: SECOND QUARTER 2016 FOIL**



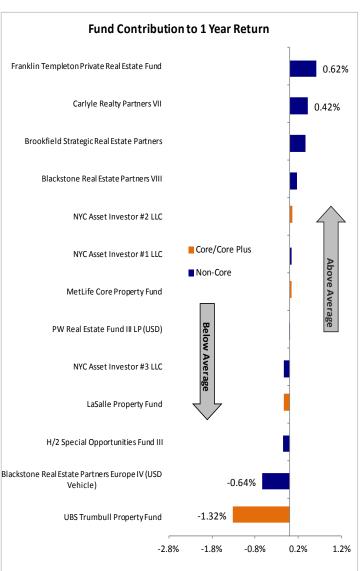
New York City Board of Education Retirement System

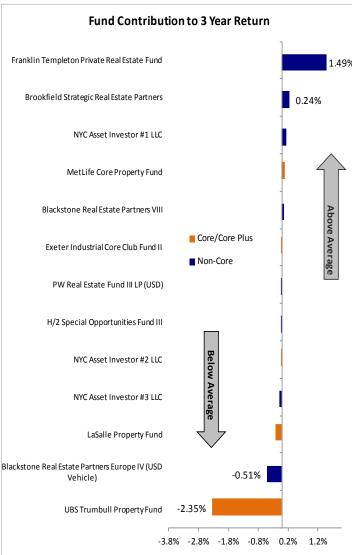
Vintage Year	Fund Name	Style Sector	Geographic Play	First Draw Down	Capital Committed	Contributions	Distributions	Market Value	Equity Multiple	Net IRR
2016	Exeter Industrial Core Club Fund II	Core/Core Plus Portfolio	Developed Americas	5/20/2016	10,000,000	2,050,000	0	2,042,045	1.0	-5.2
2016	Jamestown Premier Property Fund	Core/Core Plus Portfolio	Developed Americas	2/4/2016	5,000,000	1,390,642	-49,502	1,376,959	1.0	6.7
2011	La Salle Property Fund	Core/Core Plus Portfolio	Developed Americas	12/13/2010	27,600,000	27,600,000	-5,201,410	36,592,911	1.5	12.5
2014	MetLife Core Property Fund	Core/Core Plus Portfolio	Developed Americas	7/1/2014	15,000,000	15,000,000	-1,051,951	16,950,122	1.2	14.8
2013	NYC Asset Investor #2 LLC	Core/Core Plus Portfolio	Developed Americas	7/9/2013	11,000,000	9,100,090	-1,375,652	9,591,643	1.2	12.9
2016	NYCRS Artemis Co-Investment	Core/Core Plus Portfolio	Developed Americas	2/24/2016	11,000,000	1,215,783	0	1,661,702	n/a	n/a
2011	UBS Trumbull Property Fund	Core/Core Plus Portfolio	Developed Americas	4/1/2011	41,400,000	55,009,908	-10,937,489	72,233,843	1.5	10.2
2016	USAA Eagle Real Estate Fund	Core/Core Plus Portfolio	Developed Americas	12/1/2015	10,000,000	6,269,575	0	6,650,793	1.1	12.8
	Core/Core Plus Portfolio				131,000,000	117,635,998	-18,616,005	147,100,018	1.4	11.1
2014	Blackstone Real Estate Partners Europe IV (USD Vehicle	Non-Core Portfolio	Developed Europe	12/23/2013	32,500,000	26,734,271	-3,966,503	25,051,826	1.1	6.5
2015	Blackstone Real Estate Partners VIII	Non-Core Portfolio	Global	8/18/2015	16,500,000	6,240,626	-57,791	6,834,484	1.1	22.0
2012	Brookfield Strategic Real Estate Partners	Non-Core Portfolio	Global	9/20/2012	10,000,000	10,372,239	-3,395,475	11,017,776	1.4	17.9
2014	Carlyle Realty Partners VII	Non-Core Portfolio	Developed Americas	6/30/2014	25,000,000	10,442,331	-58,210	11,591,524	1.1	15.0
2016	European Property Investors Special Opportunities Fun	d Non-Core Portfolio	Developed Europe	12/18/2015	11,176,931	1,636,835	-161,151	1,444,952	1.0	-7.2
2011	Franklin Templeton Private Real Estate Fund	Non-Core Portfolio	Global	3/31/2011	30,000,000	29,383,435	-23,934,137	15,663,526	1.3	21.3
2015	H/2 Special Opportunities Fund III	Non-Core Portfolio	Developed Americas	12/29/2014	15,000,000	8,626,420	0	9,233,527	1.1	11.0
2013	NYC Asset Investor #1 LLC	Non-Core Portfolio	Developed Americas	6/25/2013	10,000,000	10,692,404	-1,170,665	12,092,347	1.2	15.7
2013	NYC Asset Investor #3 LLC	Non-Core Portfolio	Developed Americas	9/20/2013	8,000,000	2,738,590	-31,308	2,765,393	1.0	1.6
2016	PW Real Estate Fund III LP	Non-Core Portfolio	Developed Europe	n/a	10,624,734	0	0	-93,506	n/a	n/a
2016	Westbrook Real Estate Fund X	Non-Core Portfolio	Global	n/a	10,000,000	0	0	673	n/a	n/a
	Non-Core Portfolio				178,801,665	106,867,150	-32,775,239	95,602,523	1.2	15.4
	Small Emerging Manager				11,000,000	1,215,783	0	1,661,702	n/a	n/a
	New York City Board of Education Retirement System				309,801,665	224,503,148	-51,391,244	242,702,541	1.3	12.1

Source: PCS historical cash flow data. TIG cash flow data from Fund Managers, effective 2005. Note: The equity multiples and IRRs contained in this report are interim calculations based upon information provided by the investment managers of the New York City Retirement Systems, including cash flows and quarterly unaudited, or audited, valuations. The IRR calculations in early years of a fund life is not meaningful given the 1-curve effect and can be significantly impacted by the timing of cash flows, investment strategy, investment pacing, and fund life. The calculations are not necessarily indicative of total fund performance, which can only be determined after the fund is liquidated and all capital contributed and earnings have been distributed to the investor. All data supplied is as of June 30, 2016.

Executive Summary: Second Quarter 2016 Performance Measurement Report
Real Estate

### **EXHIBIT C: ATTRIBUTION**







### **Infrastructure Monitoring Report**

For the period ended June 30, 2016

Report Prepared For:

New York City Board of Education Retirement System





### **Table of Contents**

Ι.	executive suffillary	1
	,	
	Allocation Summary	
	Performance Summary	
	Portfolio Performance vs. Benchmarks	
	Portfolio Diversification	3
II.	Infrastructure Market Overview	4
	Market Overview	4
	Infrastructure Fundraising	5
	Major Transactions	6
III.	Portfolio Review	7
	Quarterly Highlights	7
	Performance by Vintage Year	
	Performance by Strategy and Industry Focus	8
	Performance by Geographic Focus	8
	Portfolio Diversification	9
	By Strategy, Geography and Industry Focus	9
	By Investment Manager	9
	Portfolio Cash Flow Analysis	10
	Quarterly Cash Flow Activity	10
	Annual Cash Flow Activity	10
	Net Funded and Unfunded Commitments by Vintage Year	
	Portfolio Company-Level Analysis	12
	Geographic Exposure and Performance	12
	Industry Exposure and Performance	
	Public Market Exposure	13
IV.	Risk Management Matrix	14

### **Important Information**

This document is meant only to provide a broad overview for discussion purposes. All information provided here is subject to change. This document is for informational purposes only and does not constitute an offer to sell, a solicitation to buy, or a recommendation for any security, or an offer to provide advisory or other services by StepStone Group LP, StepStone Group Real Estate LP, or their subsidiaries or affiliates (collectively, "StepStone") in any jurisdiction in which such offer, solicitation, purchase or sale would be unlawful under the securities laws of such jurisdiction. The information contained in this document should not be construed as financial or investment advice on any subject matter. StepStone expressly disclaims all liability in respect to actions taken based on any or all of the information in this document.

This document is confidential and solely for the use of StepStone and the existing and potential clients of StepStone to whom it has been delivered, where permitted. By accepting delivery of this document, each recipient undertakes not to reproduce or distribute this document in whole or in part, nor to disclose any of its contents (except to its professional advisors), without the prior written consent of StepStone. While some information used in the document has been obtained from various published and unpublished third-party sources considered to be reliable, StepStone does not guarantee its accuracy or completeness and accepts no liability for any direct or consequential losses arising from its use. Thus, all such information is subject to independent verification by prospective investors.

The document is being provided based on the understanding that each recipient has sufficient knowledge and experience to evaluate the merits and risks of investing in private equity products. All expressions of opinion are intended solely as general market commentary and do not constitute investment advice or a guarantee of returns. All expressions of opinion are as of the date of this document, are subject to change without notice and may differ from views held by other businesses of StepStone.

All valuations are based on current values provided by the general partners of the underlying funds and may include both realized and unrealized investments. Due to the inherent uncertainty of valuation, the stated value may differ significantly from the value that would have been used had a ready market existed for all of the portfolio investments, and the difference could be material. The long-term value of these investments may be lesser or greater than the valuations provided.

StepStone is not in the business of providing tax or legal advice. These materials and any tax-related statements are not intended or written to be used, and cannot be used or relied upon, by any taxpayer for the purpose of avoiding tax penalties. Tax-related statements, if any, may have been written in connection with the "promotion or marketing" of the transaction(s) or matter(s) addressed by these materials, to the extent allowed by applicable law. Any taxpayer should seek advice based on the taxpayer's particular circumstances from an independent tax advisor.

Prospective investors should inform themselves and take appropriate advice as to any applicable legal requirements and any applicable taxation and exchange control regulations in the countries of their citizenship, residence or domicile which might be relevant to the subscription, purchase, holding, exchange, redemption or disposal of any investments. Each prospective investor is urged to discuss any prospective investment with its legal, tax and regulatory advisors in order to make an independent determination of the suitability and consequences of such an investment.

An investment involves a number of risks and there are conflicts of interest.

Each of StepStone Group LP, StepStone Group Real Assets LP and StepStone Group Real Estate LP is an Investment Adviser registered with the Securities and Exchange Commission. StepStone Group Europe LLP is authorized and regulated by the Financial Conduct Authority, firm reference number 551580.

Past performance is not necessarily indicative of future results. Actual performance may vary.

### I. Executive Summary

New York City Board of Education Retirement System ("NYC BERS") established the Infrastructure Program (the "Program") in December of 2012 on behalf of its beneficiaries to participate in attractive long-term investment opportunities and to provide diversification to its overall pension investment portfolio.

The inclusion of infrastructure in the NYC BERS pension portfolio allows for global investments in facilities or assets that provide core essential services critical to the operation and development of economies. Typically infrastructure investments have high barriers to entry due to significant capital expenditure requirements, exclusive long term contracts or regulatory requirements. Infrastructure investments are comprised of long useful-life assets with high tangible value and relatively low value erosion over time.

The Program seeks to invest in opportunities in a variety of infrastructure sectors, including but not limited to, transportation, energy, power, utilities, water, wastewater, communications and social infrastructure.

StepStone Group LP ("StepStone") was engaged by NYC BERS on October 20, 2014 to provide infrastructure advisory services for prospective investment opportunities and monitoring and reporting services for existing and new investments.

Since inception through June 30, 2016, the Program has committed US\$81.0 million to six partnership investments (the "Portfolio"). This quarterly monitoring report covers the performance of the Portfolio as of June 30, 2016 as well as significant activity that occurred during the second quarter of 2016.

### **Allocation Summary**

NYC BERS has a Real Assets allocation target of 7% (plus or minus 2%) of total pension assets. Infrastructure is a component asset class within the NYC BERS Real Assets investment program.

As of June 30, 2016, the market value of NYC BERS Real Assets Program represented approximately 6.0% of total pension assets. The market value of NYC BERS Infrastructure Program represented approximately 0.7% of total pension assets, a three basis point increase from the prior quarter.

As the Program matures, the percentage of its market value relative to the total NYC BERS pension assets as well as total Real Assets will continue to increase.

US\$ in millions *	June 30, 2016	March 31, 2016	June 30, 2015	Quarterly Change	Yearly Change
Total Pension Assets*	\$4,463.0	\$4,380.0	\$4,408.0	\$83.0	\$55.0
Total Real Assets*	\$269.0	\$259.0	\$197.0	\$10.0	\$72.0
% Allocation to Real Assets (Target of 7% +/- 2%)	6.0%	5.9%	4.5%	+ 11 bps	+ 156 bps
Total Infrastructure Assets	\$30.8	\$29.0	\$20.6	\$1.8	\$10.2
% Allocation to Infrastructure vs. Total Pension Assets	0.7%	0.7%	0.5%	+ 3 bps	+ 22 bps
% Allocation to Infrastructure vs. Total Real Assets	11.4%	11.2%	10.4%	+ 25 bps	+ 99 bps

<sup>\*</sup>NYC BERS total Pension Assets and total Real Assets are as of quarter-end (or, if not yet available, the most recent month-end prior to quarter-end) as reported by The New York City Comptroller's Office on www.comptroller.nyc.gov



### **Performance Summary**

As of June 30, 2016, the Infrastructure Program has achieved a Total Value to Paid-In multiple of 1.1x invested capital and an IRR of 8.9%. Note that, given the relative immaturity of the Portfolio and underlying fund investments, the current performance to-date is not meaningful.

JS\$ in millions *	June 30, 2016	March 31, 2016	June 30, 2015	Quarterly Change	Yearly Change
Number of Managers	5	5	4	0	1
Number of Investments	6	5	4	1	2
Committed Capital <sup>1</sup>	\$81.0	\$71.0	\$59.0	\$10.0	\$22.0
Contributed Capital	\$29.2	\$27.7	\$20.4	\$1.4	\$8.7
Distributed Capital	\$1.1	\$1.0	\$0.4	\$0.1	\$0.6
Market Value	\$30.8	\$29.0	\$20.6	\$1.8	\$10.2
Total Value	\$31.8	\$29.9	\$21.0	\$1.9	\$10.8
Total Gain/(Loss)	\$2.7	\$2.2	\$0.6	\$0.5	\$2.1
Unfunded Commitment	\$52.5	\$43.8	\$38.6	\$8.8	\$14.0
Exposure <sup>2</sup>	\$83.3	\$72.8	\$59.2	\$10.6	\$24.2
DPI <sup>3</sup>	0.0x	0.0x	0.0x	0.0x	0.0x
TVPI <sup>4</sup>	1.09x	1.08x	1.03x	0.01x	0.06x
IRR <sup>5</sup>	8.9%	9.6%	9.7%	-0.6%	-0.7%
TVPI Net of StepStone Fees <sup>6</sup>	1.09x	1.08x	1.03x	0.01x	0.06x
IRR Net of StepStone Fees <sup>6</sup>	8.9%	9.5%	9.6%	-0.6%	-0.7%

<sup>\*</sup> Note that amounts may not total due to rounding. Past performance is not necessarily indicative of future results.

<sup>&</sup>lt;sup>1</sup> Committed Capital is presented net of any commitment releases or expirations and reflects foreign currency exchange rate fluctuations. Note that the Base/(US\$) committed capital for foreign currency-denominated investments as of respective quarter-end dates is calculated as follows: (total net amount funded in Base currency) + (unfunded commitment in Local currency \* quarter-end exchange rate). StepStone utilizes S&P Capital IQ as the source for quarter-end exchange rates to calculate committed capital.

<sup>&</sup>lt;sup>2</sup> Exposure represents the sum of Market Value and Unfunded Commitment.

<sup>&</sup>lt;sup>3</sup> DPI, or Distributed to Paid-In Multiple, is a performance metric that measures distributions received relative to capital invested. DPI is calculated as Distributed Capital divided by Contributed Capital.

<sup>&</sup>lt;sup>4</sup>TVPI, or Total Value to Paid-In Multiple, is a performance metric that measures total value created by the Portfolio relative to capital invested, without consideration for time. TVPI is calculated as Total Value, which is comprised of Market Value plus Distributed Capital, divided by Contributed Capital.

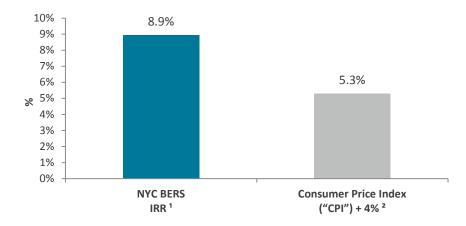
<sup>&</sup>lt;sup>5</sup> IRR, or Internal Rate of Return, is a performance metric that is calculated based on the Portfolio's daily cash flows and market value as of quarter-end. IRR is net of fund managers' fees, expenses and carried interest.

<sup>&</sup>lt;sup>6</sup>TVPI and IRR Net of StepStone fees represent TVPI and IRR net of fees paid by NYC BERS to StepStone through the quarter-end date.

### Portfolio Performance vs. Benchmarks

The performance benchmark for the Infrastructure Portfolio is to meet or exceed the Consumer Price Index ("CPI") plus 4% net of fees over a rolling 5-year period. The Infrastructure Portfolio is expected to generate a total return, net of investment management fees, of at least 6.5%.

As of June 30, 2016, the Program outperformed the benchmark by 3.6%. However, as noted previously, given the relative immaturity of the Portfolio, the current performance to-date versus benchmarks is not meaningful. The following graph illustrates Portfolio IRR performance versus the benchmark as of June 30, 2016.



<sup>1</sup>NYC BERS since inception Internal Rate of Return ("IRR") is calculated based on the Portfolio's daily cash flows and market value as of quarter-end. IRR is net of fund managers' fees, expenses and carried interest. Past performance is not necessarily indicative of future results.

<sup>2</sup>Consumer Price Index ("CPI") benchmark represents the compound annual growth rate of the Consumer Price Index for All Urban Consumers and All Items, as provided by the U.S. Department of Labor: Bureau of Labor Statistics, calculated over a five-year rolling period plus a 4.0% premium.

### **Portfolio Diversification**

The Program's objective is to build a Portfolio that is diversified by investment strategy, asset type, and geography. The target investment strategy ranges are as follows:

- Core Infrastructure Investments: 60% to 100%; and
- Non-Core Infrastructure Investments: 0% to 40%.

Actual percentages may differ substantially from these targets during the initial years of the Program. The following table illustrates the current diversification of the Portfolio by fund strategy, geography and industry focus.

	Market Value		Unfunded	Commitment	Ехр	Exposure		
As of June 30, 2016 (US\$ in millions)	\$	% of Total	\$	% of Total	\$	% of Total		
By Strategy:								
Core	30.8	100.0%	52.5	100.0%	83.3	100.0%		
Non-Core	-	0.0%	-	0.0%	-	0.0%		
Total	30.8	100.0%	52.5	100.0%	83.3	100.0%		
By Geographic Focus:								
Global	7.8	25.2%	13.2	25.2%	21.0	25.2%		
OECD	23.0	74.8%	39.3	74.8%	62.3	74.8%		
Total	30.8	100.0%	52.5	100.0%	83.3	100.0%		
By Industry Focus:								
Diversified	28.3	91.9%	40.2	76.5%	68.5	82.2%		
Energy	2.5	8.1%	12.4	23.5%	14.8	17.8%		
Total	30.8	100.0%	52.5	100.0%	83.3	100.0%		

### **II. Infrastructure Market Overview**

#### **Market Overview**

### North America

Q2 2016 saw the financial close of the landmark NYC LaGuardia Airport Terminal Public Private Partnership ("P3") project. The US\$ 4 billion deal is the country's largest P3 to date and has prompted grantors across the country to look at similar deals. Increasingly, public agencies such as Los Angeles Metropolitan Authority and Washington DC Office of Private Public Partnerships are relying on unsolicited proposals to generate potential P3 transactions. Notable P3 legislation has been passed and signed into law in Kentucky, Tennessee and New Hampshire. Kentucky's new mandate in particular not only enables counties and regional authorities to enter into P3 agreements, but also allows P3s to be used across all sectors. Offshore wind has gradually been gaining traction with some states passing or considering legislation that would allow offshore wind projects to become economically viable. For example, Massachusetts voted to move forward with a bill that would require up to 2GW of offshore wind procurement by 2027.

### Europe

While Britain's vote to leave the European Union in June ("Brexit") has created shorter term market uncertainty, stemming from currency volatility and concerns about rising funding costs, economic linkages between the UK and EU are significant and very longstanding. It is expected that interconnectivity between the economies of the UK and Europe will endure. Given the nature of the infrastructure asset class, it is expected that the impact of Brexit will be relatively less than for other sectors in the economy. Typically revenues are not exposed to market volatility as they are structured as long term contracts or subject to regulation. While some infrastructure assets might have GDP exposure (such as airports), it is expected that long-term demographic trends and the essential need of much travel will underpin revenues in these assets. Financial investors have been active in European renewables, including UK offshore wind, drawn to long-term stable cash flows. A large pipeline of offshore wind projects will require funding over the next 15 months. Projects in Germany, the Netherlands, Belgium and France all offer investors opportunities in both debt and equity financing.

#### Australia

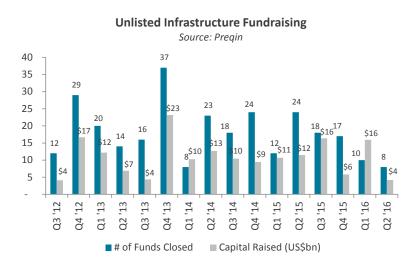
In Australia, the 50-year lease of Port of Melbourne was won in September by a consortium consisting of QIC, Future Fund, GIP and OMERS, at a reported price of A\$9.7bn and an estimated 25x EBITDA multiple. This deal further continues the trend of the sector being highly contested by a range of infrastructure investors, with transaction outcomes over the past 5 years for Port of Brisbane, Port Botany and Port Kembla, Port of Newcastle, and Port of Darwin ranging from estimated EBITDA multiples of 24x to 27x. And, in the electricity sector, the AusGrid transaction introduced new uncertainty for foreign investors into critical infrastructure assets. Chinese bidders State Grid and Cheung Kong Infrastructure were blocked from the sale process due to cited national security considerations. This has delayed the sale process for Endeavour, the third transaction in a series of privatizations for New South Wales' electricity providers.

### **Infrastructure Fundraising**

The level of institutional capital secured by unlisted infrastructure funds that reached a final close in Q2 2016 was significantly lower compared with Q1 2016.

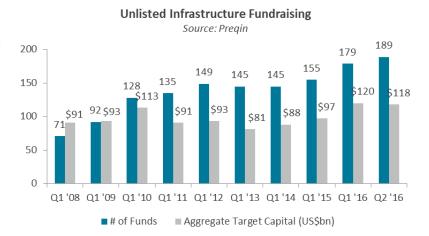
During the first quarter, eight funds held final closings. Aggregate capital raised was US\$4.2 billion. The amount represented a year over year decrease of 63% compared to Q2 2015, when 24 funds held a final close raising US\$11.5 billion.

The largest fund to reach a final closing during Q2 was Carlyle Power Partners II, which raised \$1.5 billion of commitments. The fund will pursue investments in the US power generation sector in both traditional and renewable energy opportunities. Additionally, Meridiam Infrastructure Europe III raised €1.3 billion. The fund will invest in greenfield-stage public-private partnership transactions in Europe.



Fund	General Partner	Siz	e (mn)	Location Focus
Carlyle Power Partners II	Carlyle Group	\$	1,500	North America
Meridiam Infrastructure Europe III	Meridiam	€	1,300	Europe
SMA 5	Macquarie Infrastructure Debt Investment So	€	500	UK
Meridiam Transition Fund	Meridiam	€	350	France
Star America Infrastructure Partners	Star America Infrastructure Partners	\$	300	North America

At the end of the second quarter, Preqin observed 189 funds in market targeting aggregate capital commitments of US\$118 billion. The largest funds in market include: Brookfield Infrastructure Fund III, targeting US\$14 billion, and Global Infrastructure Partners III, targeting US\$12.5 billion.



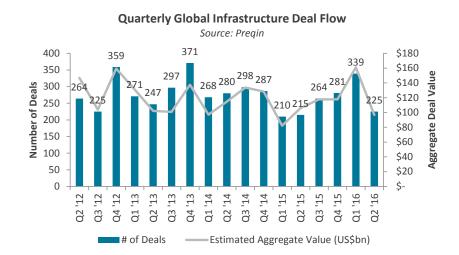
### **Major Transactions**

During the second quarter, 225 infrastructure deals were completed with an estimated aggregate deal value of US\$97 billion, representing a 40% decrease compared to the prior quarter. Several significant infrastructure transactions completed in the second quarter are presented below.

In April 2016, PT Pertamina and Rosneft Oil Company closed a \$13.0 billion joint venture deal to construct an oil refinery in Indonesia.

In June 2016, HOCHTIEF Concessions and J. Murphy and Sons closed on a £2.4 billion deal to construct a 23-mile mining tunnel in North Yorkshire, UK.

In June 2016, Sacyr Vallehermoso was awarded a public-private partnership contract for the construction and concession of the 186km Rome-Latina freeway in Italy valued at €2.8 billion.



In June 2016, TransCanada Corporation was awarded the contract to construct, own, and operate the Sur de Texas-Tuxpan natural gas pipeline in Mexico. The deal is valued at \$2.1 billion.

In April 2016, Cheung Kong Infrastructure Holdings agreed to purchase select midstream assets in Lloydminster, Canada from Husky Energy in the amount of \$1.7 billion representing a 65% equity stake.

### III. Portfolio Review

### **Quarterly Highlights**

• **New Investment Commitments** – During the second quarter of 2016, the Program closed on one new investment commitment totaling US\$10.0 million. This is shown in the table below.

US\$ in millions

Investment	Month and Year Closed	Vintage Year	Strategy	Geographic Focus	Industry Focus	Committed Capital
Brookfield Infrastructure Fund III, L.P.	April 2016	2016	Infrastructure	Global	Diversified	\$10.0
Total						\$10.0

- **Subsequent Investment Commitments** Subsequent to quarter-end through October 21, 2016, the Program has not closed on any additional investment commitments.
- Cash Outflow Decreased During the second quarter of 2016, the Program made US\$1.4 million of contributions and received US\$0.1 million of distributions, for a net cash outflow of US\$1.3 million. This compared to a net cash outflow of US\$2.9 million during the prior quarter. Net cash flow is expected to remain negative for the next several years as the Program's committed capital is drawn down for investments, fees and expenses by fund managers.
- Valuation Increased During the second quarter of 2016, net of cash flow activity, the valuation of the Portfolio increased by approximately US\$0.5 million, or 1.6%, from the prior quarter. The valuation increase reflects the increase in value of underlying investments in IFM Global Infrastructure Fund, Brookfield Infrastructure Fund II, Brookfield Infrastructure Fund III, and KKR Global Infrastructure Investors II.
- **New Underlying Fund Investments** During the second quarter of 2016, seven new investment positions were added to the Portfolio. The top five new investments in terms of the portfolios exposed invested capital are below.

US\$ in millions

Company	Fund(s)	Investment	Stage	Industry	Country	Exposed		TVM
		Date			<u> </u>	Invested	Market	
PEMEX Midstream	KKR Global Infrastructure Investors II L.P.	Jun-16	Private	Energy	Mexico	1.0	1.0	1.0x
Arrowhead Gulf Coast Holdings	First Reserve Energy Infrastructure Fund II, L.P.	Ma y-16	Private	Energy	United States	0.7	0.7	1.0x
Columbia Renewable Power	Brookfield Infrastructure Fund III, L.P.	Jan-16	Private	Renewables	Colombia	0.6	0.7	1.1x
U.S. Renewable Power	Brookfield Infrastructure Fund III, L.P.	Apr-16	Private	Renewables	United States	0.4	0.4	1.0x
Peruvian Toll Roads	Brookfield Infrastructure Fund III, L.P.	Jun-16	Private	Transportation	Peru	0.3	0.3	1.0x

• **New Exits** – There were no exits of investment positions during the quarter.

### **Performance by Vintage Year**

The following table illustrates the Portfolio's since-inception investment performance by vintage year as of June 30, 2016. Note that the performance of funds that are less than one year old is not meaningful.

As of June 30, 2016 (US\$ in millions)

Vintage Year	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Total Value	Total Gain/ (Loss)	Unfunded Commitment	Exposure	DPI	TVPI	IRR
2013	\$10.0	\$6.0	\$0.7	\$6.8	\$7.5	\$1.5	\$4.0	\$10.9	0.1x	1.2x	16.2%
2014	49.0	22.2	0.4	23.0	23.4	1.2	27.3	50.3	0.0x	1.1x	5.6%
2016	22.0	0.9	-	0.9	0.9	0.0	21.2	22.1	NM	NM	NM
Total	\$81.0	\$29.2	\$1.1	\$30.8	\$31.8	\$2.7	\$52.5	\$83.3	0.0x	1.1x	8.9%

### **Performance by Strategy and Industry Focus**

The following table illustrates the Portfolio's since-inception investment performance by strategy and industry focus as of June 30, 2016.

As of June 30, 2016 (US\$ in millions)

Strategy/Industry	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Total Value	Total Gain/ (Loss)	Unfunded Commitment	Exposure	DPI	TVPI	IRR
Core	\$81.0	\$29.2	\$1.1	\$30.8	\$31.8	\$2.7	\$52.5	\$83.3	0.0x	1.1x	8.9%
Diversified	66.0	26.4	1.0	28.3	29.3	2.8	40.2	68.5	0.0x	1.1x	10.0%
Energy	15.0	2.7	0.1	2.5	2.6	(0.2)	12.4	14.8	0.0x	0.9x	(8.4%)
Total	\$81.0	\$29.2	\$1.1	\$30.8	\$31.8	\$2.7	\$52.5	\$83.3	0.0x	1.1x	8.9%

### **Performance by Geographic Focus**

The following table and charts illustrate the Portfolio's since-inception investment performance by geographic focus as of June 30, 2016.

As of June 30, 2016 (US\$ in millions)

Geographic Focus	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Total Value	Total Gain/ (Loss)	Unfunded Commitment	Exposure	DPI	TVPI	IRR
Global	\$20.0	\$6.8	\$0.7	\$7.8	\$8.4	\$1.6	\$13.2	\$21.0	0.1x	1.2x	17.3%
OECD	61.0	22.3	0.4	23.0	23.4	1.1	39.3	62.3	0.0x	1.0x	5.1%
Total	\$81.0	\$29.2	\$1.1	\$30.8	\$31.8	\$2.7	\$52.5	\$83.3	0.0x	1.1x	8.9%

### **Portfolio Diversification**

### By Strategy, Geography and Industry Focus

The Program's objective is to build a Portfolio that is diversified by investment strategy, asset type, and geography. The target investment strategy ranges are as follows:

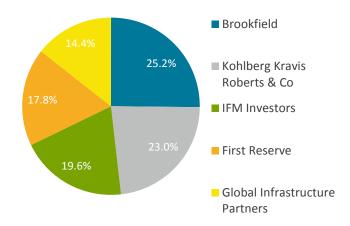
- Core Infrastructure Investments: 60% to 100%; and
- Non-Core Infrastructure Investments: 0% to 40%.

Actual percentages may differ substantially from these targets during the initial years of the Program. The following table illustrates the current diversification of the Portfolio by fund strategy, geography and industry focus.

	Market Value		Unfunded	Unfunded Commitment		Exposure	
As of June 30, 2016 (US\$ in millions)	\$	% of Total	\$	% of Total	\$	% of Total	
By Strategy:							
Core	30.8	100.0%	52.5	100.0%	83.3	100.0%	
Non-Core	-	0.0%	-	0.0%	-	0.0%	
Total	30.8	100.0%	52.5	100.0%	83.3	100.0%	
By Geographic Focus:							
Global	7.8	25.2%	13.2	25.2%	21.0	25.2%	
OECD	23.0	74.8%	39.3	74.8%	62.3	74.8%	
Total	30.8	100.0%	52.5	100.0%	83.3	100.0%	
By Industry Focus:							
Diversified	28.3	91.9%	40.2	76.5%	68.5	82.2%	
Energy	2.5	8.1%	12.4	23.5%	14.8	17.8%	
Total	30.8	100.0%	52.5	100.0%	83.3	100.0%	

### By Investment Manager

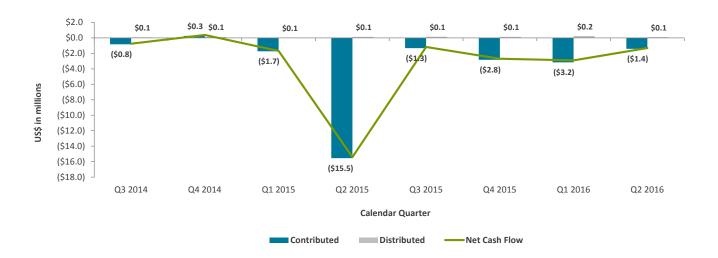
As of June 30, 2016, the Program had made six investment commitments to five managers. NYC BERS seeks to limit its exposure to any single manager to no more than 10% of the total Real Assets Program when fully invested. As the Program matures and closes on additional commitments, the single manager exposure is expected to decline significantly. Below is the Portfolio's current exposure by manager.



### **Portfolio Cash Flow Analysis**

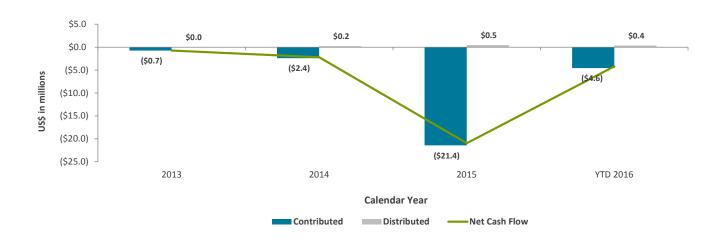
### **Quarterly Cash Flow Activity**

During the second quarter of 2016, the Program made US\$1.4 million of contributions and received US\$0.1 million of distributions, for a net cash outflow of US\$1.3 million. As of June 30, 2016, six fund investments in the Portfolio had cash flow activity. As the Program's commitment and investment activity increases, net cash outflow is expected to increase. The graph below illustrates cash flow activity since inception by calendar quarter.



### **Annual Cash Flow Activity**

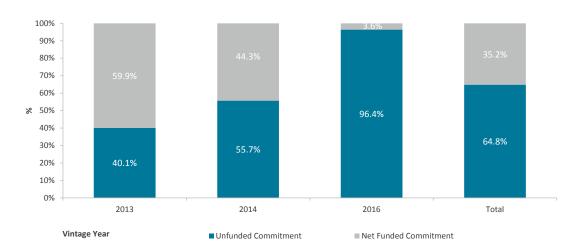
During the first six months of 2016, the Program made US\$4.6 million of contributions and received US\$0.4 million of distributions, for a net cash outflow of US\$4.2 million. The graph below illustrates cash flow activity since inception by calendar year.



### Net Funded and Unfunded Commitments by Vintage Year

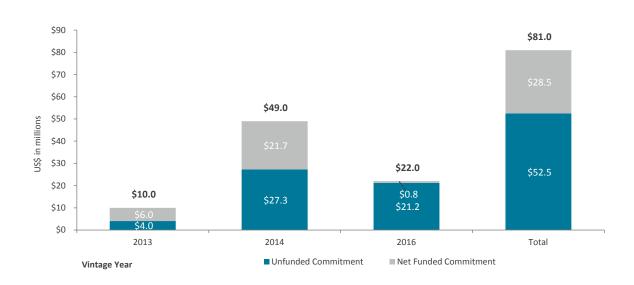
The following chart illustrates the Portfolio's net funded commitments (defined as total contributions inside commitment less any returns of excess capital and recallable distributions) as a percentage of total capital commitments, by fund vintage year, as of June 30, 2016. Overall, the Portfolio was 64.8% unfunded as of quarter-end.

### Net Funded and Unfunded Commitment by Vintage Year (%)



The following chart illustrates the Portfolio's net funded commitments relative to total capital commitments, by fund vintage year, as of June 30, 2016. Overall, the Portfolio had US\$52.5 million of unfunded commitments as of guarter-end.

### Net Funded and Unfunded Commitment by Vintage Year (US\$ millions)



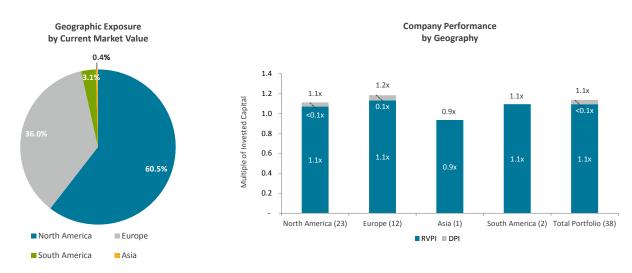


### **Portfolio Company-Level Analysis**

As of quarter-end, the Portfolio had exposure to 38 unique portfolio companies/investment positions. As the Portfolio matures, the number of unique portfolio companies/investment positions is expected to increase significantly. On the individual fund level, all current investments are within the single investment limitation of 15% of total fund size. The Program's individual portfolio investment exposure is relatively concentrated as a result of the relative immaturity of the Program.

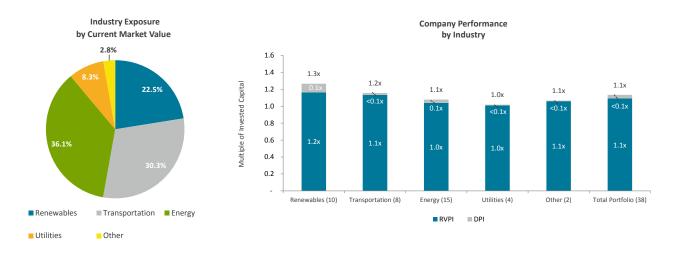
### **Geographic Exposure and Performance**

The following charts illustrate the Portfolio's current exposure and performance by geographic region at the portfolio company level.



### **Industry Exposure and Performance**

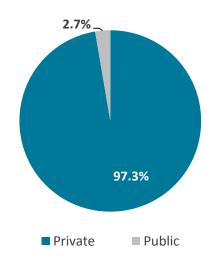
The following charts illustrate the Portfolio's current exposure and performance by industry at the portfolio company level.



### **Public Market Exposure**

As of quarter-end, publicly traded investments comprised 2.7% of the Portfolio's exposed market value. The following chart illustrates the current public market exposure at the portfolio company level.

### **Public Market Exposure Current Market Value**



### IV. Risk Management Matrix

Category	Requirement	Status	Status Notes
Allocation	NYC BERS has a Real Assets allocation target of 7% (plus or minus 2%) of total pension assets.  Infrastructure is a component asset class within the NYC BERS Real Assets investment program.	<b>√</b>	The market value of NYC BERS Real Assets Program currently represents approximately 6.0% of total pension assets and the market value of NYC BERS Infrastructure Program represents approximately 0.7% of total pension assets.  As the Program matures, its market value as a percentage of the total NYC BERS pension assets and the total Real Assets Program is expected to increase.
Performance vs. Benchmarks	The performance benchmark for the Infrastructure Portfolio is to meet or exceed the Consumer Price Index ("CPI") plus 4% net of fees over a rolling 5-year period.  The Infrastructure Portfolio is expected to generate a total return, net of investment management fees, of at least 6.5%.	✓	As of June 30, 2016, the Portfolio outperformed the benchmark by 3.6%.  However, given the relative immaturity of the Portfolio, the current performance to-date versus benchmarks is not meaningful.
Strategy Diversification	Core Infrastructure Investments: 60-100% Non-Core Infrastructure Investments: 0-40%  Actual percentages may differ substantially from these targets during the initial years of the Program.	<b>√</b>	The Program is in compliance with the Core/Non-Core allocation ranges. Currently the Program only has exposure to Core investments.
Asset Type & Location Diversification	The Program will seek diversification by asset type, revenue drivers, and geography. The portfolio may include a variety of assets including but not limited to electricity transmission, pipelines, airports, toll roads, communication towers and electric generators, windmills etc. to vary the sources of revenue to the portfolio.	<b>√</b>	Given the relative immaturity of the Portfolio, it is not yet diversified by asset type.  The asset types and geographic location of current Portfolio investments are in compliance with the Program's Investment Policy Statement and Permissible Markets.
Leverage	The average leverage of all investments in the Program is to be no higher than 65%.	✓	The Program is in compliance with the average leverage limitation. The current leverage level is $42.5\%$ .
Single Investment Size & Manager Diversification	The maximum commitment to a single investment is limited to no more than 15% of the aggregate committed capital of each fund.  The maximum commitment to a single manager is limited to 10% of the total Real Assets Program allocation when fully invested.	✓	On the individual fund level, all current investments are in compliance with the single investment limitation of 15% of total fund size.  The Program is in compliance with the single manager limitation of 10% of the total Real Assets Program.  The Program's manager exposure is currently relatively concentrated as a result of the relative immaturity of the Program. Manager diversification is expected to increase as the Program closes on new investment commitments.

<sup>\*</sup>The Program's leverage level is calculated by using a weighted average of each underlying investment's leverage and Net Asset Value as of June 30, 2016.



**Basket Clause** 

### **BERS - BASKET/NON BASKET SUMMARY**

As of September 30th, 2016	Adjı	usted Fund Po	Fund Actual (PE & RE on an invested basis)			
. 15 0. Depte50. 50t, 20.10	Non		_	Non	nvested bas	<u>(S)</u>
Equity	Basket*	Basket*	Total	Basket*	Basket*	Total
Domestic Equity	36.9%	0.0%	36.9%	37.4%	0.0%	37.4%
Non-U.S. Equity	10.0%	12.0%	22.0%	10.0%	12.0%	22.0%
Private Equity	0.0%	4.9%	4.9%	0.0%	4.9%	4.9%
Real Assets	6.2%	0.0%	6.2%	6.2%	0.0%	6.2%
Total Equity	53.1%	16.9%	70.0%	53.6%	16.9%	70.5%
Fixed Income						
Core+5	16.5%	0.5%	17.0%	14.2%	0.5%	14.7%
U.S. Gov't Sector	3.7%	0.0%	3.7%	2.2%	0.0%	2.2%
Mortgage Sector	5.8%	0.0%	5.8%	5.7%	0.0%	5.7%
Credit Sector	7.0%	0.5%	7.5%	6.8%	0.5%	7.3%
High Yield	4.4%	1.1%	5.5%	4.2%	1.1%	5.3%
Bank Loans	0.0%	2.5%	2.5%	0.0%	2.3%	2.3%
TIPS	4.5%	0.5%	5.0%	4.2%	0.5%	4.7%
Other Fixed Income	0.0%	0.0%	0.0%	2.5%	0.0%	2.5%
Total Fixed Income	25.4%	4.6%	30.0%	25.1%	4.3%	29.5%
Total Fund	78.5%	21.5%	100.0%	78.7%	21.3%	100.0%
Remaining Capacity		3.5%			3.7%	

<sup>\*</sup> Note: Basket amounts are estimates



AUM as of September 30, 2016

		Liquid Assets				
	Current MV	Today	1 Year	2 Years		
PUBLIC EQUITY	\$2,808	\$2,808	\$2,808	\$2,808		
U.S.	1,768	1,768	1,768	1,768		
EAFE Equity	789	789	789	789		
Emerging Markets	251	251	251	251		
PUBLIC FIXED INCOME	\$1,393	\$1,378	\$1,384	\$1,384		
Short Term Securities	89	89	89	89		
U.S. Government	105	105	105	105		
Mortgages						
Core Mortgages	267	267	267	267		
ETI	31	16	22	22		
Credit - Investment Grade	320	320	320	320		
Corporate - Hight Yield	250	250	250	250		
Corporate - Bank Loans	110	110	110	110		
UST - Inflation Protected	221	221	221	221		
ALTERNATIVE ASSETS	\$526	\$0	\$0	\$0		
Private Equity	234	0	0	0		
Private Real Estate	254	0	0	0		
Infrastructure	38	0	0	0		
Total Assets	\$4,727	\$4,186	\$4,192	\$4,192		
Total Illiquid \$		\$541	\$535	\$535		
Total Illiquid %		11.4%	11.3%	11.3%		
Unfunded PE Commitments	\$270					
Unfunded RE Commitments	198					
Total commitments \$	\$468					
Total commitments %	9.9%					

### **BERS Liquidity Profile - Static Analysis**

12/5/16

AUM as of September 30, 2016

**Denominator Effect - Decrease AUM by One-Third** 

 Total Illiquid \$
 \$541
 \$535
 \$535

 Total Illiquid %
 17.2%
 17.0%
 17.0%

Note: Assumes zero realizations, no new commitments and a five-year investment period; funded out of liquids

		Liquid Assets				
	Current MV	Today	1 Year	2 Years		
Total Assets	\$4,727	\$4,186	\$4,192	\$4,192		
Private Equity, Real Estate and O	Opportunistic Fixed Income S	tress Case				
Unfunded PE Commitments Drawr	1		\$54	\$108		
Unfunded RE Commitments Drawr	1		40	79		
Total commitments \$			\$94	\$187		
<b>Total commitments %</b>			2.0%	4.0%		
Total Illiquid \$			\$628	\$722		
Total Illiquid %			13.3%	15.3%		
Note: Assumes zero realizations, n	o new commitments and a five	e-year investment per	iod; funded out of liqu	uids		

**Denominator Effect - Decrease AUM by One-Third** 

 Total Illiquid \$
 \$541
 \$628
 \$722

 Total Illiquid %
 17.2%
 19.9%
 22.9%

Note: Assumes zero realizations, no new commitments and a five-year investment period; funded out of liquids